

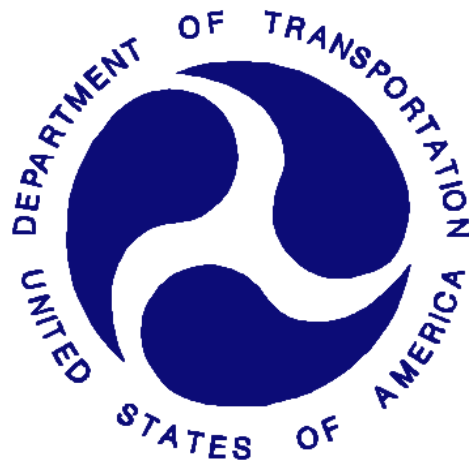
REPORT NUMBER: SINCAP-CAL-12-003

**NEW CAR ASSESSMENT PROGRAM (NCAP)
Moving Deformable Barrier Side Impact Test**

**Chrysler Group LLC
2012 Chrysler 200 LX
Four Door Sedan**

NHTSA NUMBER: MC0308

**PREPARED BY:
CALSPAN CORPORATION
P.O. BOX 400
BUFFALO, NEW YORK 14225**



November 17, 2011

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
MAIL CODE: NVS-111
1200 NEW JERSEY AVE SE, ROOM W43-410
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Date: _____

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Date: _____

FINAL REPORT ACCEPTANCE BY OCWS:

Division Chief, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

Date: _____

COTR, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

Date: _____

Technical Report Documentation Page

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9. Performing Organization Name and Address Calspan Corporation Transportation Sciences Center P.O. Box 400 Buffalo, New York 14225	10. Work Unit No.	
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15. Supplementary Notes

16. Abstract

A 55/28 kph 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2012 Chrysler 200 LX Four Door Sedan in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. This test was conducted at the Calspan Corporation Crash Test Facility in Buffalo, New York, on 10/18/2011.

The impact velocity of the Moving Deformable Barrier (MDB) was 62.31 km/h, and the ambient temperature at the struck side (driver side) of the vehicle was 12°C. The target vehicle's maximum post-test static crush was 202 mm at level 2. The test vehicle's performance was as follows:

Measurement Description	Driver ATD (ES-2re)		
	Units	IARV	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	88.11
Maximum Thoracic Rib Deflection	mm	44	30.04
Total Abdominal Force	N	2500	999.18
Pubic Symphysis Force	N	6000	-1735.44
Measurement Description	Passenger ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	437.07
Lower Spine Resultant Acceleration	G	82	75.04
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4006.03
Maximum Thoracic Rib Deflection	mm	38*	36.16
Maximum Abdominal Rib Deflection	mm	45*	33.92

The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.

17. <i>Key Words</i> New Car Assessment Program (NCAP) Side Impact MDB ES-2re SID-IIs		18. <i>Distribution Statement</i> Copies of this report are available from: National Highway Traffic Safety Adm. Technical Information Services Division, NPO-411 1200 New Jersey Ave. SE Room E12-100 Washington, D.C. 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833	
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SECTION 1

TEST PURPOSE AND PROCEDURE

PURPOSE

This moving deformable barrier side impact test is part of the MY 2012 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract number DTNH22-09-D-00126. The purpose of this test is to generate comparative side impact performance in a 2012 Chrysler 200 LX Four Door Sedan. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated August 2012.

SECTION 2

SUMMARY OF TEST RESULTS

SUMMARY

A 2012 Chrysler 200 LX Four Door Sedan was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 62.31 km/h (38.72 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by the Calspan Corporation Transportation Sciences Center in Buffalo, New York on October 18, 2011. Pretest and post- test photographs of the test vehicle, the MDB and the dummies (ES-2re and SID-IIs) are included in this report.

Dummies were placed in the driver and left rear designated seating positions according to instructions specified in the OCWS Side Impact Laboratory Test Procedure, dated August 2011. The side impact event was documented by 9 high-speed and 2 real-time cameras. Camera locations are included in this report.

The Dummies were instrumented in the following manner:

DRIVER ATD (ES-2re)

- Primary and redundant head CG tri-axial accelerometers
- Chest upper rib, middle rib, and lower rib y-axis displacement potentiometers
- Abdomen forward, middle, and rear y-axis load cells
- Lower spine (T12) tri-axial accelerometers
- Public symphysis y-axis load cell

PASSENGER ATD (SID-IIs)

- Primary and redundant head CG tri-axial accelerometers
- Chest upper rib, middle rib, and lower rib y-axis displacement potentiometers
- Abdomen upper rib and lower rib y-axis displacement potentiometers
- Lower spine (T12) tri-axial accelerometers
- Acetabulum and iliac wing y-axis load cells

Appendix B contains the vehicle and dummy response data. Dummy configuration and performance verification data can be found in APPENDIX C of this report.

Dummy injury values were recorded as follows:

	Driver ATD (ES-2re)		
Measurement Description	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	88.11
Maximum Thorax Rib Deflection	mm	44	30.04
Combined Abdominal Force	N	2500	999.18
Pubic Symphysis Force	N	6000	-1735.44

	Passenger ATD (SID-IIs)		
Measurement Description	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	437.07
Lower Spine (T12) Resultant Acceleration	G	82	75.04
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4006.03
Maximum Thoracic Rib Deflection	mm	38*	36.16
Maximum Abdominal Rib Deflection	mm	45*	33.92

*Proposed IARV

Supplemental restraint information is given below:

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	No	No		
Torso Airbag	Yes	Yes	No	No
Side Curtain Airbag	Yes	Yes	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes	No	No	
Other				

Data Anomalies

- Channel V2P4 RBUA DY- Passenger Upper Abdominal Rib DY is questionable 48-60 ms
- Channel V2 DSRF02 Ax - Right Front Sill Ax is questionable after 18 ms

SECTION 3
Occupant and Vehicle Information

**DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2012 Chrysler 200 LX
Test Program: Side MDB NCAP

NHTSA No.: MC0308
Test Date: 10/18/2011

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	MC0308	Traction Control System (TCS)	Yes
Model Year	2012	Auto-Leveling System	No
Make	Chrysler	Automatic Door Locks (ADL)	Yes
Model	200 LX	Power Window Auto-Reverse	No
Body Style	Four Door Sedan	Other Optional Feature	--
VIN	1C3CCBAB1CN101544	Driver Front Airbag	Yes
Body Color	Light gray/silver	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	278 / 173	Driver Head/Torso Airbag	No
Engine Displacement (L)	2.4	Driver Torso Airbag	Yes
Type/No. Cylinders	I4	Driver Torso/Pelvis Airbag	No
Engine Placement	Lateral	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	No
Transmission Speeds	4-Speed	Rear Pass. Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	Front Wheel Drive	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso/Pelvis Airbag	No
Sunroof/T-Top	No	Rear Pass. Pelvis Airbag	No
Running Boards	No	Driver Seat Belt Pretensioners	Yes
Tilt Steering Wheel	Yes	Rear Pass. Seat Belt Pretensioners	No
Power Seats	No	Driver Load Limiters	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiters	No
All-Wheel Drive (AWD)	No	Other Safety Restraint	-

Does owner's manual provide instructions to turn off automatic door locks?

No

DATA FROM CERTIFICATION LABEL

Manufactured By	Chrysler Group LLC	GWR (kg)	2,087
Date of Manufacture	8/11	GAWR Front (kg)	1,180
Vehicle Type	Passenger	GAWR Rear (kg)	1,007

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3	0	5	
Capacity Weight (VCW) (kg)				392.0	(A)
DSC X 68.04 kg				340.2	(B)
Cargo Weight (RCLW) (kg)				51.8*	(A-B)

VEHICLE SEAT TYPE

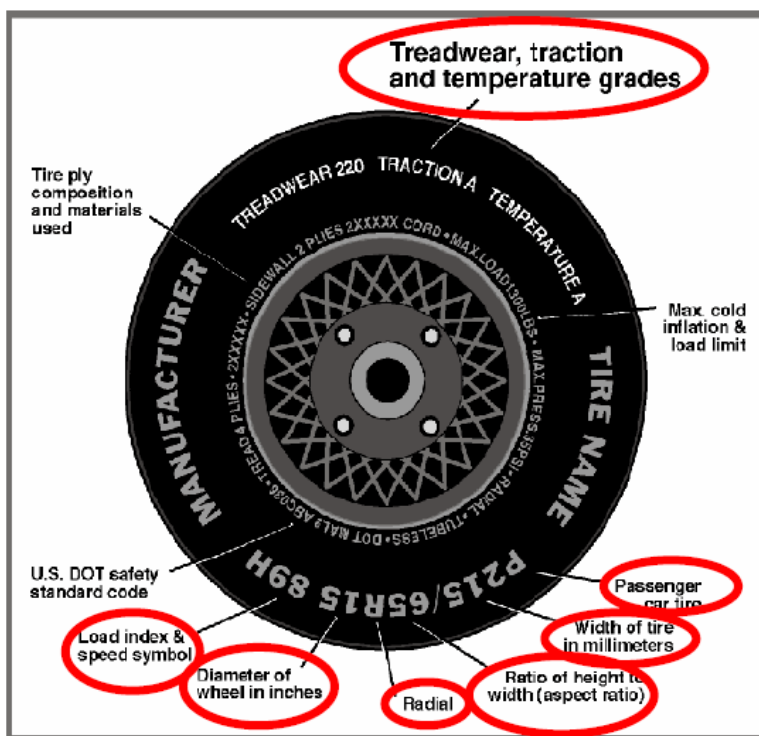
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						W/ Lever	W/ Knob
Front Seat	X					X	
Rear or Second Row Seat		X			X		
Third Row seat							

DATA SHEET NO. 1 (CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2012 Chrysler 200 LX
 Test Program: Side MDB NCAP

NHTSA No.: MC0308
 Test Date: 10/18/2011

VEHICLE TIRE INFORMATION



TIRE PLACARD INFORMATION

Measured Parameter	Front	Rear
Recommended Cold Tire Pressure (kPa)	220	220
Recommended Tire Size	P225/55R17	P225/55R17

TIRE SIDEWALL INFORMATION

Measured Parameter	Front	Rear
Maximum Tire Pressure	300	300
Tire Size on Vehicle	P225/55R17	P225/55R17
Tire Manufacturer	Michelin	Michelin
Tire Name	Primacy MXV4	Primacy MXV4
Tire Type	Passenger	Passenger
Tire Width	225	225
Aspect Ratio	55	55
Radial	Yes	Yes
Wheel Diameter	432	432
Load Index/Speed Symbol	97V	97V
Treadwear	620	620
Traction Grade	A	A
Temperature Grade	A	A
Tire Material	Rubber	Rubber

DATA SHEET NO. 1 (CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2012 Chrysler 200 LX
 Test Program: Side MDB NCAP

NHTSA No.: MC0308
 Test Date: 10/18/2011

TEST PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	220	220	220	220
Tire Placard	kPa	220	220	220	220
Owner's Manual	kPa	220	220	220	220
As Tested	kPa	220	220	220	220

MDB TIRE SPECIFICATIONS

	Units	Requirement	LF	RF	LR	RR
Tire Size		P205/75R15	P205/75R15	P205/75R15	P205/75R15	P205/75R15
Tire	kPa	200 ± 21	214	200	207	207

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	492.0	306.5		522.0	395.0		533.5	392.5	
Right	kg	442.0	309.0		455.0	357.0		451.5	362.0	
Ratio	%	60	40		57	43		57	43	
Totals	kg	934.0	615.5	1,549.5	977.0	752.0	1,729.0	985.0	754.5	1,739.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1,549.5	(A)
Sum of Actual Weight of 2 P572 ATDS Used	kg	136.8	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	51.8	(C)
Calculated Target Vehicle Test Weight (TVTW)	kg	1,738.1	(A+B+C)

Does the measured As Test Vehicle Weight lie within the required weight range (i.e. Calculated Test Vehicle Target Weight – 4.5 k to 9 kg)? ☒ YES ☐ NO

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast (if any)	None

DATA SHEET NO. 1 (CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2012 Chrysler 200 LX
 Test Program: Side MDB NCAP

NHTSA No.: MC0308
 Test Date: 10/18/2011

TEST VEHICLE ATTITUDE AND CG

Measurement Description	Units	Fully Loaded	As Tested	Meets Requirement**
LF	mm	737	737	Yes
RF	mm	741	746	Yes
RR	mm	723	726	Yes
LR	mm	740	735	Yes
Vehicle CG (Aft of Front Axle)	mm	1200	1203.5	
Vehicle CG (Left+)/Right(-) from Longitudinal Centerline)	mm	58.7	54.7	

***The "As Tested" vehicle attitude measurements must be equal to or within ± 10 mm of the "Fully Loaded" vehicle attitude measurements at each wheel well. Indicate "Yes" or "No" for "Meets Requirements".

DATA SHEET NO. 2
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA

Test Vehicle: 2012 Chrysler 200 LX
Test Program: Side MDB NCAP

NHTSA No.: MC0308
Test Date: 10/18/2011

SEAT POSITIONING

The driver's seat, front center seat (if applicable), and right front passenger's seat should be set to the mid-track, lowest, mid-angle position. The struck-side rear passenger's seat, rear center seat, and non-struck side rear passenger's seats should be set to the rear-most, lowest, mid-angle position.

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	16.5	12.9	14.7
Front Passenger Seat	FIXED	FIXED	FIXED
Front Center Seat*			
Struck Side Rear Seat	FIXED	FIXED	FIXED
Non-Struck Side Rear Seat	FIXED	FIXED	FIXED
Rear Center Seat*	FIXED	FIXED	FIXED

*if applicable

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid (°)	As Tested SCR P Height (mm)	SCRO Height Position	SCR P Height (mm)		
				Rearmost	Mid- Fore/Aft	Forward- Most
Driver Seat	14.7	13	Max	-	-	-
			Mid	4	13	22
			Min	-	-	-
Front Passenger Seat	No Adjustment Height or Angle Option		Max			
			Mid			
			Min			
Front Center Seat*	N/A	N/A	Max			
			Mid			
			Min			
Struck Side Rear Seat	FIXED	FIXED	Max			
			Mid			
			Min			
Non-Struck Side Rear Seat	FIXED	FIXED	Max			
			Mid			
			Min			
Rear Center Seat*	FIXED	FIXED	Max			
			Mid			
			Min			

*if applicable

Note: Max and Min values were not recorded for the Driver's Seat

DATA SHEET NO. 2 (CONTINUED)
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA

Test Vehicle: 2012 Chrysler 200 LX
 Test Program: Side MDB NCAP

NHTSA No.: MC0308
 Test Date: 10/18/2011

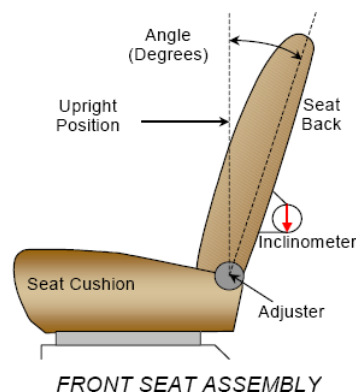
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detent*	mm	Detent*
Driver Seat	234	35	117	17
Front Passenger Seat	260	39	130	19
Front Center Seat*				
Struck Side Rear Seat	FIXED	FIXED	FIXED	FIXED
Non-Struck Side Rear Seat	FIXED	FIXED	FIXED	FIXED
Rear Center Seat*	FIXED	FIXED	FIXED	FIXED

*if applicable

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned to the manufacturer's designated design angle. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck side rear seat back is positioned such that the dummy's head is level. The rear center and non-struck side rear outboard seat backs are positioned in a similar manner as the struck-side rear seat back.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detents*
Driver Seat w/ Seated Dummy	10.8		12.7	
Front Passenger Seat	10.8		12.7	
Front Center Seat*				
Struck Side Rear Seat w/ Seated Dummy	FIXED	FIXED	FIXED	FIXED
Non-Struck Side Rear Seat	FIXED	FIXED	FIXED	FIXED
Rear Center Seat*	FIXED	FIXED	FIXED	FIXED

*if applicable

DATA SHEET NO. 2 (CONTINUED)
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA

Test Vehicle: 2012 Chrysler 200 LX
 Test Program: Side MDB NCAP

NHTSA No.: MC0308
 Test Date: 10/18/2011

SEAT BELT ANCHORAGE ADJUSTMENT

Seatbelt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1. For this test Zero is the uppermost position.

	Total # of Positions	Placed in Position #
Driver Seat	4	0
Rear Seat	FIXED	FIXED

HEAD RESTRAINT ADJUSTMENT

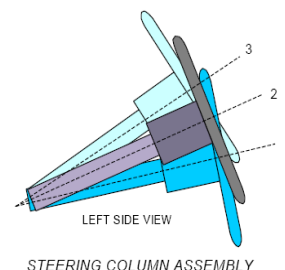
The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position. In this test Zero is the full forward position.

	Total # of Positions	Placed in Position #
Driver Seat	3	0
Rear Seat	FIXED	FIXED

STEERING COLUMN ADJUSTMENT

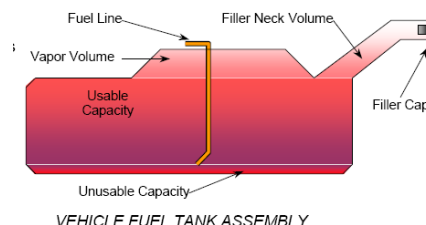
Steering wheel and column adjustments are made so that the steering wheel hub is at the center of its geometric locus it describes when it moves through its full range of motion.

	Degrees	Fore/Aft Position (mm)
Lowermost - Position 1	73.4	
Geometric Center – Position 2	70.3	
Uppermost – Position 3	67.2	
Telescoping Steering Wheel Travel		48
Test Position	70.3	24



FUEL PUMP

Describe the fuel pump type, details about how it Operates, and the location of the fuel filler neck.



DATA SHEET NO. 2 (CONTINUED)
SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2012 Chrysler 200 LX
Test Program: Side MDB NCAP

NHTSA No.: MC0308
Test Date: 10/18/2011

FUEL TANK CAPACITY

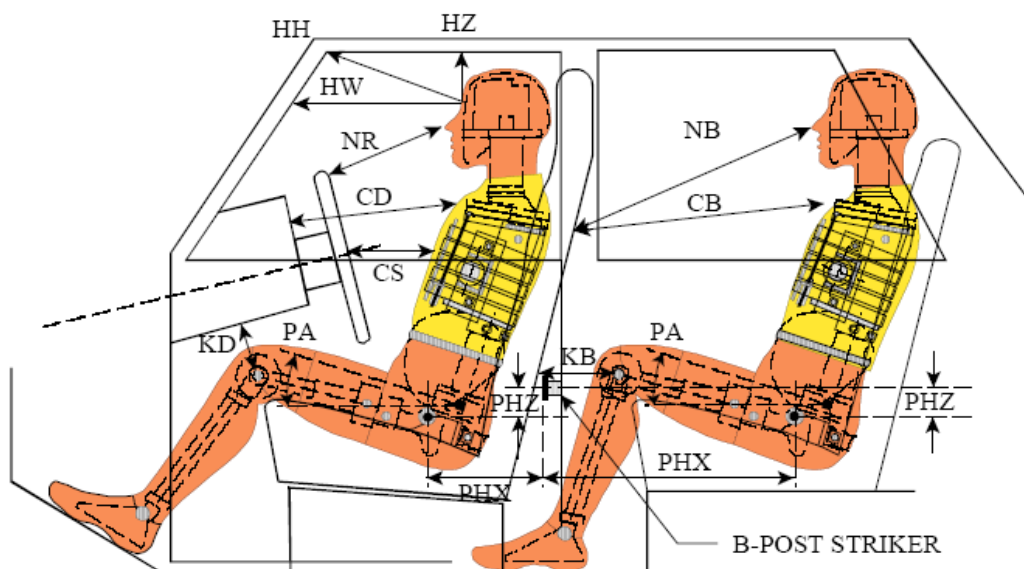
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	64.0
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity Used for FMVSS 301 (see Owner's Manuel)	64.0
Usable Capacity of Optional Tank (see Owner's Manuel)	
93% of Usable Capacity	59.4
Actual Amount of Solvent Used in Test	59.4
1/3 of Usable Capacity	21.3

Is the Actual Amount of Solvent Used in the test equal to 93% \pm 1% of the Usable Capacity stated in on Form No. 1? ☒ YES ☐ NO

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2012 Chrysler 200 LX
 Test Program: Side MDB NCAP

NHTSA No.: MC0308
 Test Date: 10/18/2011



LEFT SIDE VIEW

NOTE: 2-DOOR VEHICLE SHOWN.
 REAR DUMMY PHX & PHZ
 MEASUREMENTS FOR A 4-DOOR
 VEHICLE WOULD USE THE C-POST
 STRIKER AS A REFERENCE POINT

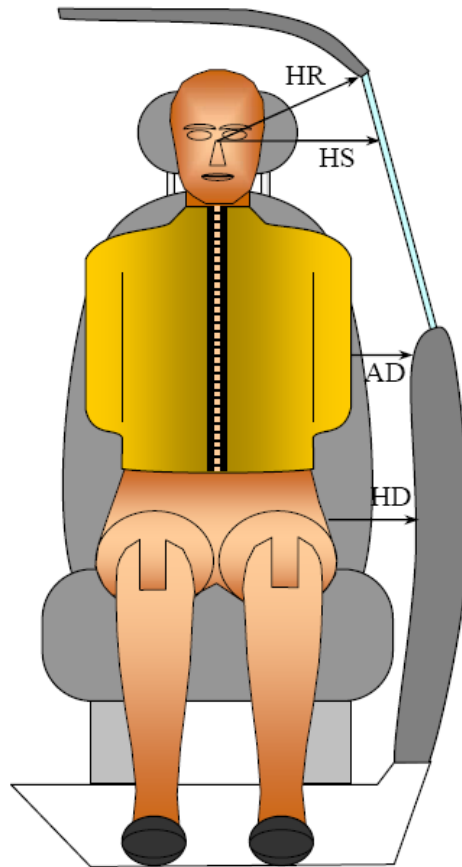
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length (mm)	Angle	Length (mm)	Angle
HH		Header to Header	447			
HW		Header to Windshield	673			
HZ	HZ	Head to Roof Liner	179		286	
NR	NB	Nose to Rim/Seat Back	450		557	
CD	CB	Chest to Dash/Seat Back	591		555	
CS		Chest to Steering Wheel	308			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	150	22.2	264	21.7
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	136	22.5	276	20.1
PAX°	PAX°	Pelvic Tilt Angle X		22.8		21.4
	PAY°	Pelvic Tilt Angle Y				0.3
PHX	PHX	Hip Point to Striker (X-Axis)	194		190	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	161		298	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2012 Chrysler 200 LX
Test Program: Side MDB NCAP

NHTSA No.: MC0308
Test Date: 10/18/2011



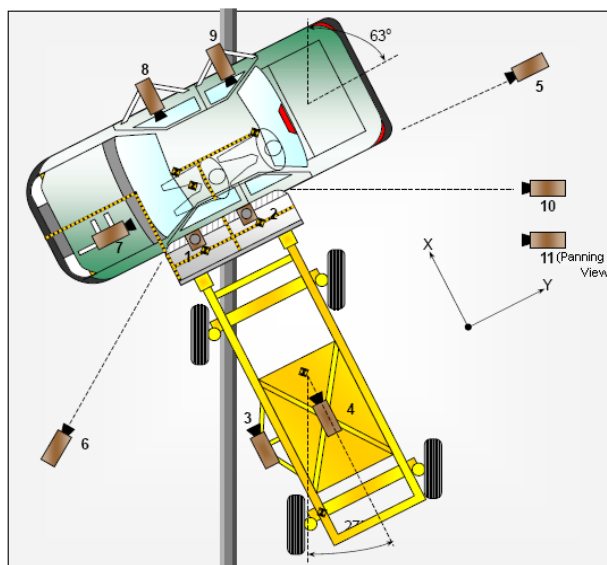
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Description	Units	Driver	Passenger
HR	Head to Side Header	mm	187	275
HS	Head to Side Window	mm	362	413
AD	Arm to Door	mm	79	153
HD	Hip Point to Door	mm	123	188

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2012 Chrysler 200 LX
Test Program: Side MDB NCAP

NHTSA No.: MC0308
Test Date: 10/18/2011



CAMERA LOCATIONS AND DATA

No.	Camera View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Overhead Overall	240	700	5150	14	1000
2	Overhead Close-up	150	710	5150	28	1000
3	Left Impact Point (MDB)	-1470	0	-847	25	500
4	Side Overall (MDB)	-1140	838	-1587	12.5	500
5	Rear	4918	9060	1010	50	1000
6	Left Front	2766	517	945	24	1000
7	Driver Front (OB)				25	500
8	Driver Side (OB)				12.5	500
9	Passenger Side (OB)				12.5	500
10	Real-time Left Rear				-	30
11	Real-time Inrun				-	30

Reference: Impact Point projected to Ground; +X = To Front of MDB, +Y = To Right of MDB, +Z = Down
*All measurements accurate to ± 6 mm.

If applicable, explain why camera(s) did not operate as intended: _____

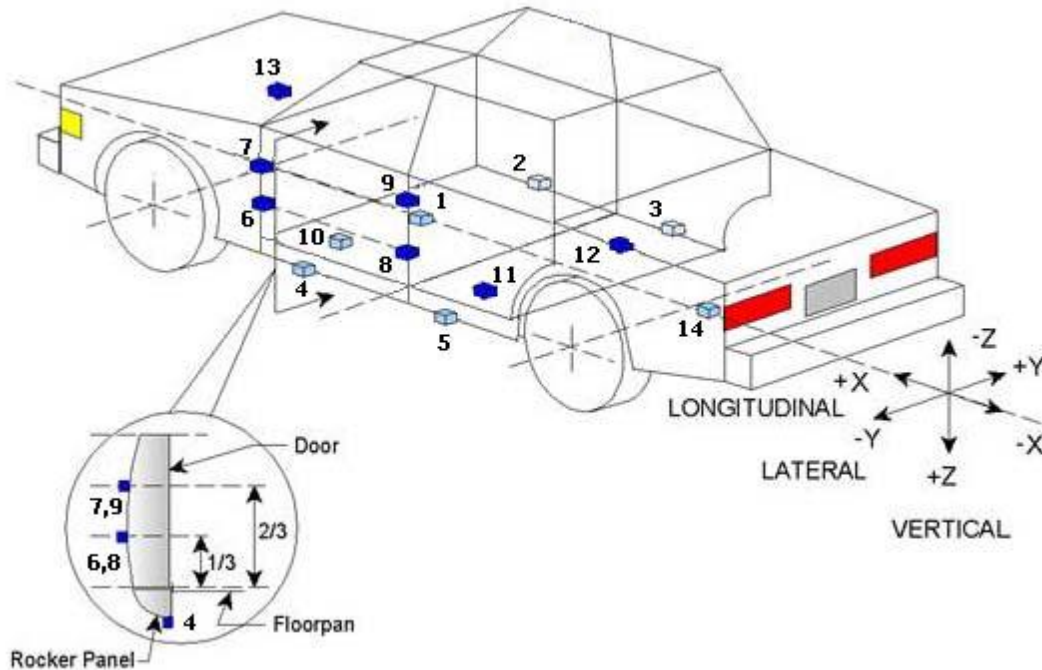
INSTRUMENTATION

Driver Dummy Channels	16
Passenger Dummy Channels	16
Vehicle Structure Accelerometers	23
MDB Accelerometers	7
Total	62

DATA SHEET NO. 6
TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2012 Chrysler 200 LX
 Test Program: Side MDB NCAP

NHTSA No.: MC0308
 Test Date: 10/18/2011



TEST VEHICLE ACCELEROMETER LOCATIONS

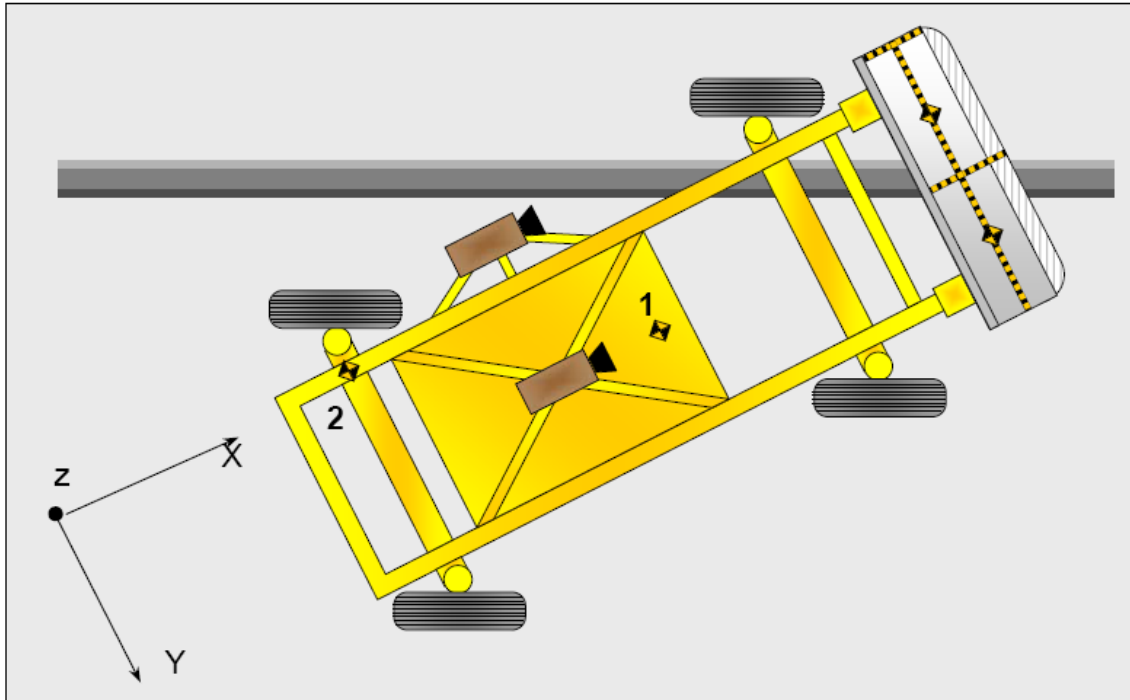
Loc. No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2913.0	13.0	519.0
2	Right Sill at Front Seat	2954.0	658.0	335.0
3	Right Sill at Rear Seat	2073.0	662.0	305.0
4	Left Sill at Front Door	2964.0	-622.0	313.0
5	Left Sill at Rear Door	2056.0	-647.0	288.0
6	A-Post Lower	3220.0	-614.0	373.0
7	A-Post Middle	3248.0	-589.0	534.0
8	B-Post Lower	2268.0	-683.0	396.0
9	B-Post Middle	2206.0	-703.0	833.0
10	Front Seat Track	2307.0	-159.0	234.0
11	Rear Seat Structure	1172.0	-534.0	589.0
12	Rt. Rear Occ. Compartment	2144.0	405.0	213.0
13	Engine Block	4025.0	174.0	819.0
14	Rear Above Axle	972.0	62.0	603.0

Reference: X – Rear surface of vehicle (+ forward)
 Y – Vehicle centerline (+ to right)
 Z – Ground plane (+ down)

DATA SHEET NO. 7
MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2012 Chrysler 200 LX
 Test Program: Side MDB NCAP

NHTSA No.: MC0308
 Test Date: 10/18/2011



MDB ACCELEROMETER LOCATIONS

Loc No.	Accelerometer Locations	Coordinates (mm)		
		X	Y	Z
1	MDB CG	1859	0	-330
2	MDB Rear	386	-660	-660

Reference: X – Face of MDB (+ forward)
 Y – MDB centerline (+ to right)
 Z – Ground plane (+ down)

**DATA SHEET NO. 8
POST-TEST OBSERVATIONS**

Test Vehicle: 2012 Chrysler 200 LX
Test Program: Side MDB NCAP

NHTSA No.: MC0308
Test Date: 10/18/2011

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	Side curtain Airbag	Side Curtain Airbag
Top of Head	A-Pillar Vehicle Interior	C-Pillar Vehicle Interior
Left Side of Head	Curtain Airbag, A-Pillar vehicle interior	Curtain Airbag, C-Pillar Vehicle Interior
Back of Head	Headrest	Rear seat back
Left Shoulder	Curtain Airbag and Driver's side door	Side Curtain Airbag
Upper Torso Contact	Torso airbag and Driver's side door	Side Curtain Airbag
Lower Torso Contact	Driver's Side Door	Left Rear Passenger Door
Left Hip	Driver's Side Door	Left Rear Passenger Door
Left Knee Contact	Driver's Side Door	Left Rear Passenger Door

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/ Other Door
	Front	Rear	Front	Rear	
Remained Closed and Operational	Not Operational	Not Operational	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	12mm	0	0	0	
Latch or Hinge Systems Pulled Out of Their Anchorages	No	No	No	No	
Disengaged from Latched Position	No	No	No	No	
Latch Separated from Striker	No	No	No	No	
Jammed Shut	Yes	Yes	No	No	
If Door Opened at Striker, Record Width of Opening at Striker (mm)	0	10 mm	NA	NA	

**** Note:** Indicate "Yes", "No", or "N/A".

POST-TEST SEAT PERFORMANCE

Description	Struck Side		Non-Struck Side	
	Front	Rear	Front	Rear
Seat Movement Along Seat Track	Unrecoverable	NA	No	No
Seat Disengagement from Floor pan	No	No	No	No
Seat Back Movement from Initial Position	Unrecoverable	NA	No	No
Seat Back Collapse	No	No	No	No

**** Note:** Indicate "Yes", "No", or "N/A".

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	All the vehicle's pillars are in good condition
Sill Separation	None
Windshield Damage	None
Window Damage	Driver's window cracked
Other Notable Effects	None

DATA SHEET NO. 8 (CONTINUED)
POST-TEST OBSERVATIONS

Test Vehicle: 2012 Chrysler 200 LX
Test Program: Side MDB NCAP

NHTSA No.: MC0308
Test Date: 10/18/2011

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	No	No		
Torso Airbag	Yes	Yes	No	No
Side Curtain Airbag	Yes	Yes	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	No	No
Seat Belt Load Limiter	Yes	No	No	No
Other				

MDB LEFT EDGE IMPACT POINT DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		2766
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		443
Actual Impact Point (Aft of Frontal Axle)	mm		451
Horizontal Offset(+ forward / - rearward)	mm	+/- 50 of Intended Impact Point	-8
Vertical Offset (+ down / - up)	mm	+/- 20 of Intended Impact Point	11

DATA SHEET NO. 9
MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Test Vehicle: 2012 Chrysler 200 LX
 Test Program: Side MDB NCAP

NHTSA No.: MC0308
 Test Date: 10/18/2011

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1,250
Overall Length Including Honeycomb Frame	4,120
Wheel Base of Framework Carriage	2,600
CG Location of Front Axle	1,120

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	392.5	297.5	690.0
Right	kg	386.0	291.5	677.5
Ratio	%	57.4	42.6	100.0
Totals	kg	778.5	589.0	1367.5

SPEED AND ANGLE AT IMPACT DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.3
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.4
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.5
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	63
MDB Crabbed angle to MDB Forward Line of Motion	degrees	26 to 28	27

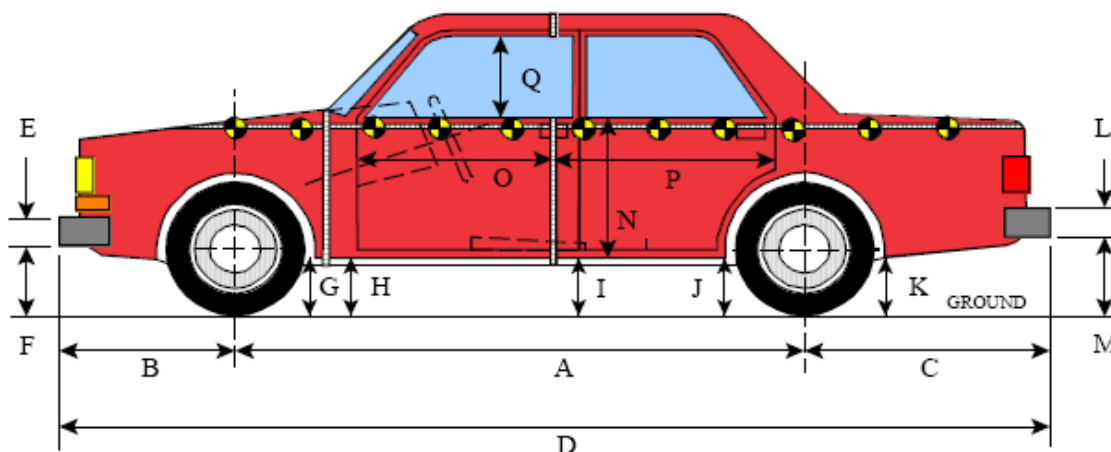
MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

Vertical Location			From Centerline		Maximum Crush
Row	Description	Height	Distance	Direction	
A	Center of Bumper	432	800	Right	202
B	Top of Bumper	533	700	Right	112
C	Mid-Level	686	800	Left	129
D	Top of Stack	813	800	Left	132

DATA SHEET NO. 10
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2012 Chrysler 200 LX
Test Program: Side MDB NCAP

NHTSA No.: MC0308
Test Date: 10/18/2011



LEFT SIDE VIEW

All MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3 mm

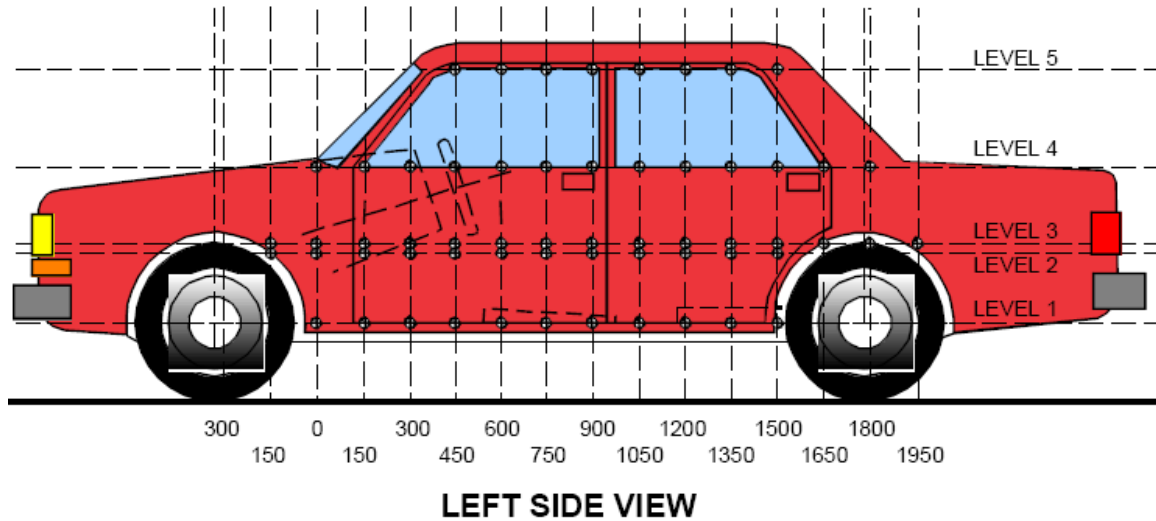
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2767	2769	2
B	Front Axle to FSOV	1050	1060	10
C	Rear Axle to RSOV	1051	1047	-4
D	Total Length at Centerline	4867	4873	6
E	Front Bumper Thickness	160	160	0
F	Front Bumper Bottom to Ground	348	374	26
G	Sill Height at Front Wheel Well	179	143	-36
H	Sill Height at Front Door Leading Edge	214	195	-19
I	Sill Height at B Pillar	226	234	8
J1	Sill Height at Rear Wheel Well	221	207	-14
J2	Pinch Weld Height at Rear Wheel Well	171	183	12
K	Sill Height Aft of Rear Wheel Well	254	265	11
L	Rear Bumper Thickness	200	200	0
M	Rear Bumper Bottom to Ground	484	493	9
N	Sill Height to Window Bottom of Front Window Sill	715	661	-54
O	Front Door Leading Edge to Impact CL	807	738	-69
P	Rear Door Trailing Edge to Impact CL	1214	1150	-63
Q	Front Window Opening	414	414	0
R	Right Side Length	4728	4615	-113
S	Left Side Length	4718	4675	-43
T	Vehicle Width at B-Pillar	1801	1617	-184

DATA SHEET NO. 11
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2012 Chrysler 200 LX
 Test Program: Side MDB NCAP

NHTSA No.: MC0308
 Test Date: 10/18/2011



Level	Measurement Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	240	59	1200
2	Driver Hip Point	547	202	1350
3	Mid-Door	629	198	1500
4	Window Sill	852	137	900
5	Window Top	1,401	1	1950

NOTE: The above measurements should be taken along the vertical impact reference line.
 Vehicle measurements forward of the vertical impact reference line are negative.

DATA SHEET NO. 11 (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2012 Chrysler 200 LX
Test Program: Side MDB NCAP

NHTSA No.: MC0308
Test Date: 10/18/2011

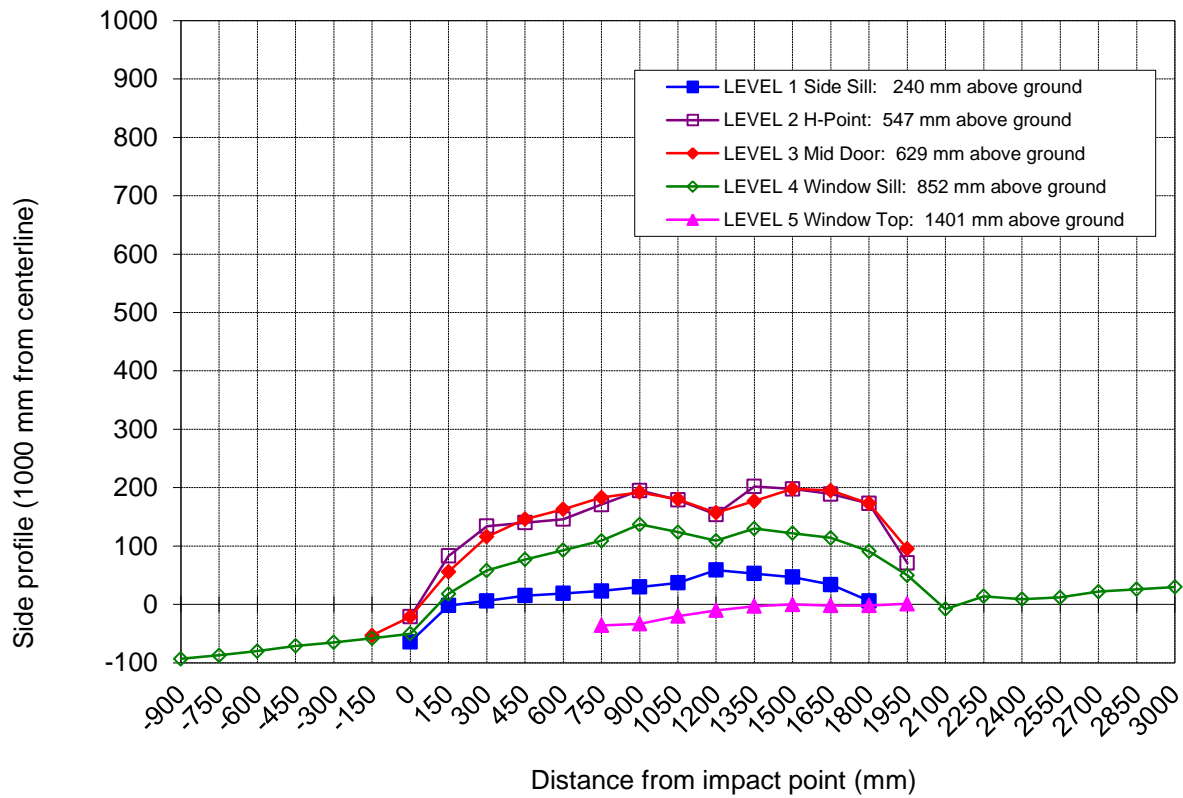
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900				-708					-801					-93	
-750				-780					-867					-87	
-600				-814					-894					-80	
-450				-839					-910					-71	
-300				-857					-922					-65	
-150			-922	-870				-975	-928				-53	-58	
0	-881	-915	-913	-879		-945	-936	-934	-929		-64	-21	-21	-50	
150	-859	-897	-898	-883		-861	-814	-842	-865		-2	83	56	18	
300	-860	-895	-899	-887		-854	-761	-783	-829		6	134	116	58	
450	-859	-895	-900	-893		-844	-755	-754	-816		15	140	146	77	
600	-858	-895	-900	-895		-839	-749	-737	-802		19	146	163	93	
750	-855	-894	-899	-897	-571	-832	-723	-716	-788	-607	23	171	183	109	-36
900	-852	-894	-899	-898	-619	-822	-699	-707	-761	-652	30	195	192	137	-33
1050	-849	-892	-897	-897	-626	-812	-713	-717	-773	-646	37	179	180	124	-20
1200	-846	-889	-894	-896	-626	-787	-735	-737	-787	-636	59	154	157	109	-10
1350	-841	-885	-891	-892	-626	-788	-683	-714	-762	-629	53	202	177	130	-3
1500	-835	-881	-886	-884	-624	-788	-683	-688	-762	-624	47	198	198	122	0
1650	-830	-876	-882	-877	-620	-796	-687	-687	-763	-622	34	189	195	114	-2
1800	-839	-877	-880	-873	-609	-833	-704	-707	-782	-611	6	173	173	91	-2
1950		-895	-895	-869	-541		-824	-800	-819	-540		71	95	50	1
2100				-868					-876					-8	
2250				-867					-853					14	
2400				-861					-852					9	
2550				-850					-838					12	
2700				-841					-819					22	
2850				-820					-794					26	
3000				-789					-759					30	

NOTE: Pre-test measurements are taken when the vehicle is in the "As Tested" weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to test based on an estimated impact point.

DATA SHEET NO. 11 (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2012 Chrysler 200 LX
Test Program: Side MDB NCAP

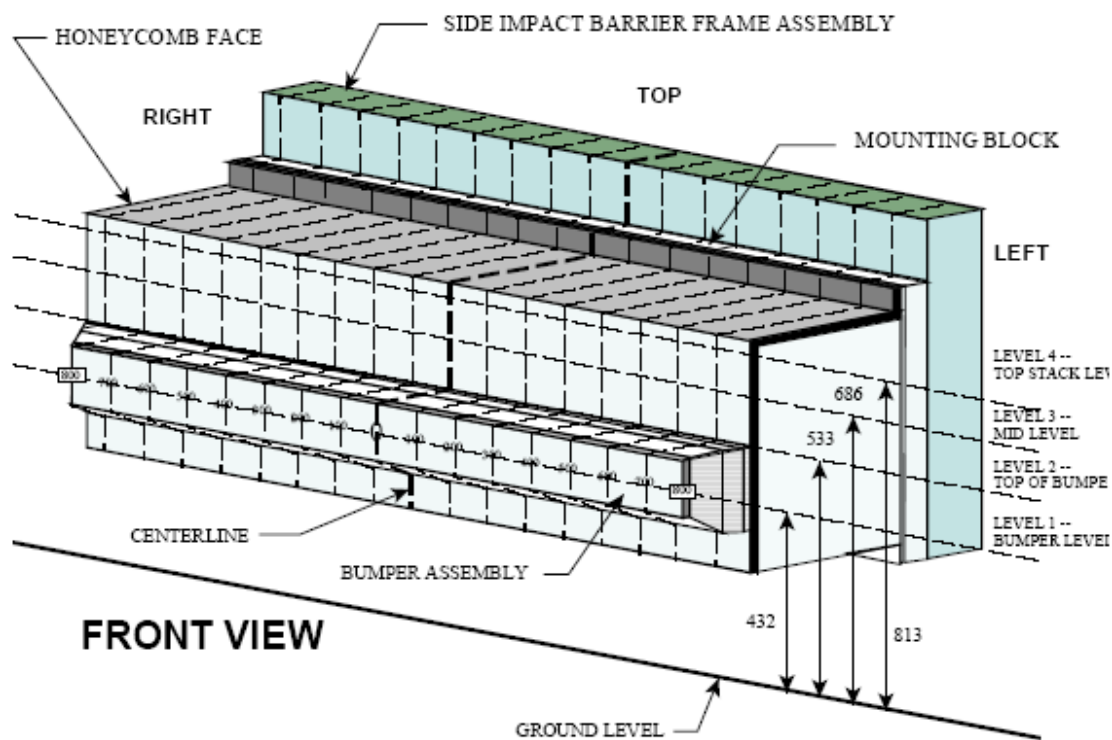
NHTSA No.: MC0308
Test Date: 10/18/2011



DATA SHEET NO. 12
EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Test Vehicle: 2012 Chrysler 200 LX
 Test Program: Side MDB NCAP

NHTSA No.: MC0308
 Test Date: 10/18/2011



NOTE: Dimensions are shown in millimeters, mm

DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	202	182	164	152	144	143	142	142	142	143	145	145	145	147	149	158	182
2	111	97	89	82	79	74	74	74	73	84	87	88	89	90	92	97	108
3	61	42	35	33	38	57	57	61	34	22	18	20	26	35	49	74	129
4	96	77	67	65	66	80	103	81	57	47	54	56	64	78	89	105	132

FMVSS NO. 301 STATIC ROLLOVER RESULTS

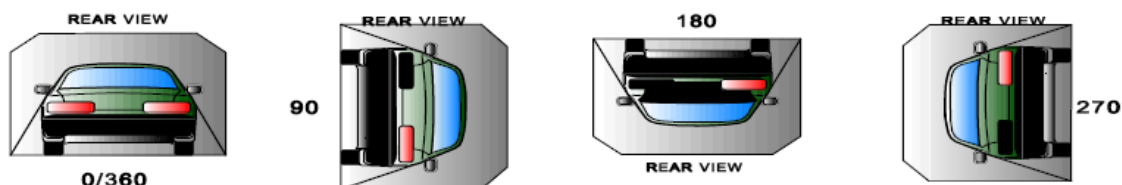
Test Vehicle: 2012 Chrysler 200 LX
 Test Program: Side MDB NCAP

NHTSA No.: MC0308
 Test Date: 10/18/2011

Test Time: 11:00AM Temperature: 12° C

- A. From impact until vehicle motion ceases: 0 oz.
 (Maximum allowable is 1 oz.)
- B. For the 5-minute period after motion ceases: 0 oz.
 (Maximum allowable is 5 oz.)
- C. For the following 25 minutes: 0 oz.
 (Maximum allowable is 1 oz./minute)
- D. Spillage Details: None

FMVSS NO. 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0 to 90	71	300	371
90 to 180	63	300	363
180 to 270	64	300	364
270 to 360	72	300	372

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	0		
90 to 180	0	0		
180 to 270	0	0		
270 to 360	0	0		

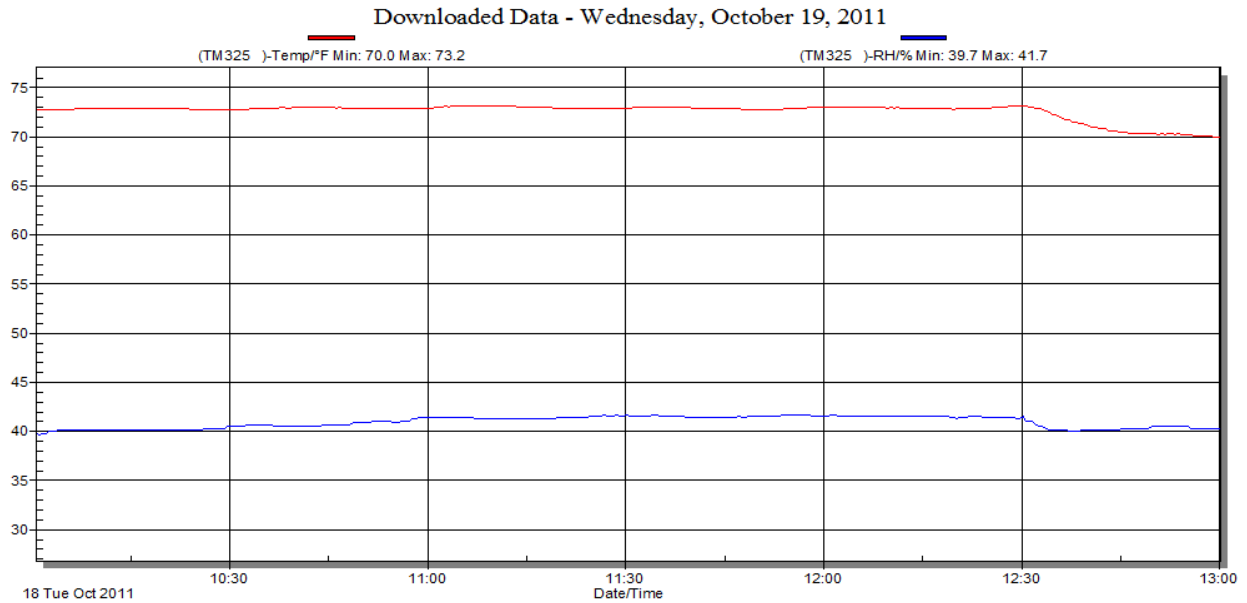
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0 to 90	
90 to 180	
180 to 270	
270 to 360	

DATA SHEET NO. 14
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2012 Chrysler 200 LX
Test Program: Side MDB NCAP

NHTSA No.: MC0308
Test Date: 10/18/2011



APPENDIX A
PHOTOGRAPHS

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Figure A-1: As-Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



Figure A-2: As-Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle



Figure A-3: Pre-Test Frontal View of Test Vehicle



Figure A-4: Post-Test Frontal View of Test Vehicle



Figure A-5: Pre-Test Left Front ¾ View of Test Vehicle



Figure A-6: Post-Test Left Front ¾ View of Test Vehicle



Figure A-7: Pre-Test Left Side View of Test Vehicle



Figure A-8: Post-Test Left Side View of Test Vehicle



Figure A-9: Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



Figure A-10: Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



Figure A-11: Pre-Test Rear View of Test Vehicle



Figure A-12: Post-Test Rear Side View of Test Vehicle



Figure A-13: Pre-Test Right Side View of Test Vehicle



Figure A-14: Post-Test Right Side View of Test Vehicle

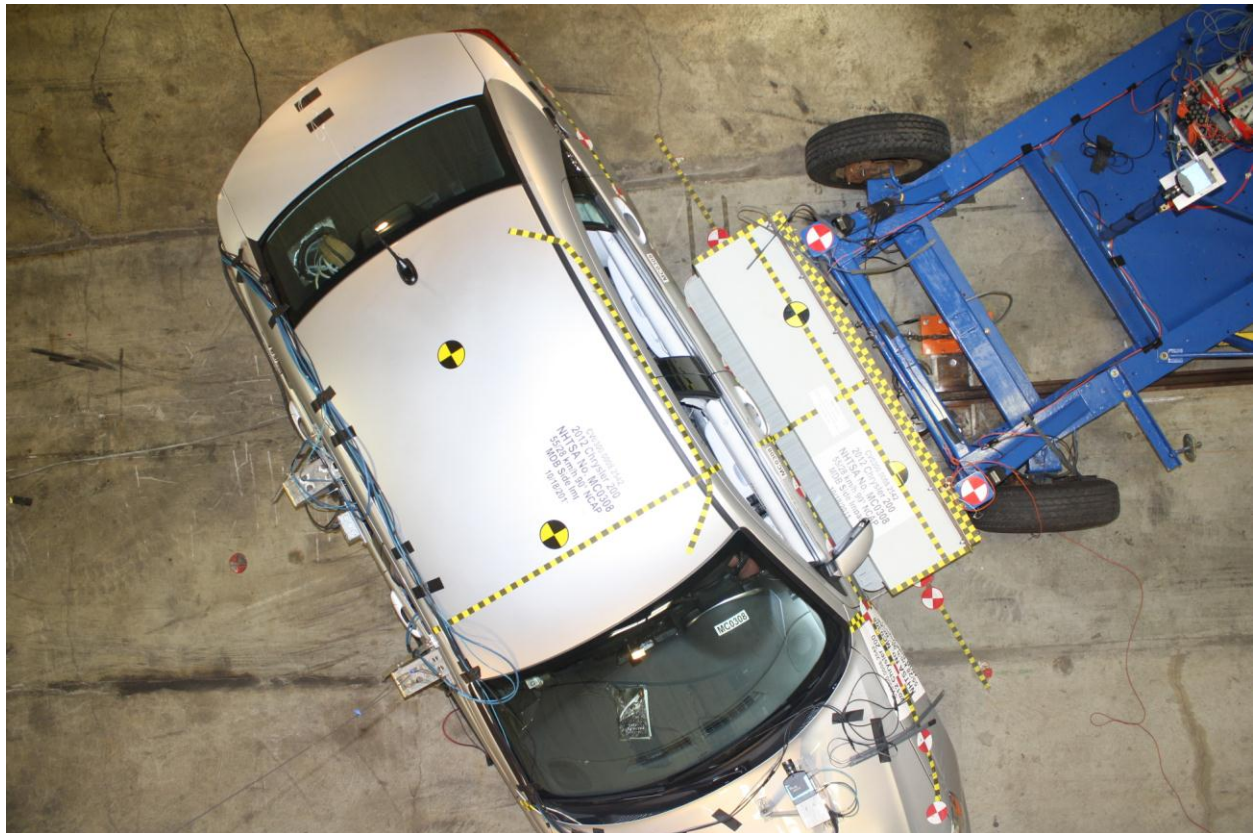


Figure A-15: Pre-Test Overhead View of the Test Area



Figure A-16: Post-Test Overhead View of Test Area



Figure A-17: Pre-Test Left Side View of MDB Positioned Against Side of Test Vehicle

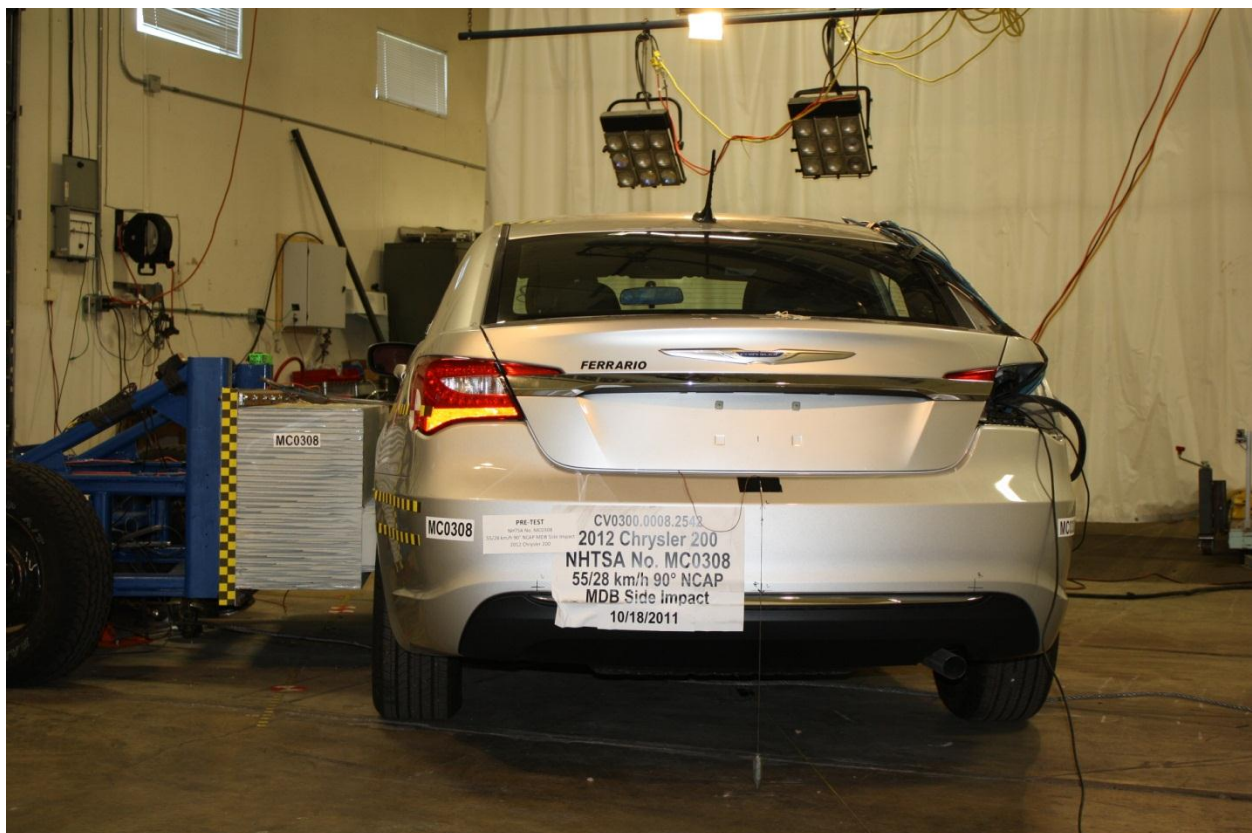


Figure A-18: Pre-Test Right Side View of MDB Positioned Against Side of Test Vehicle



Figure A-19: Pre-Test Close-Up View of Impact Point Target

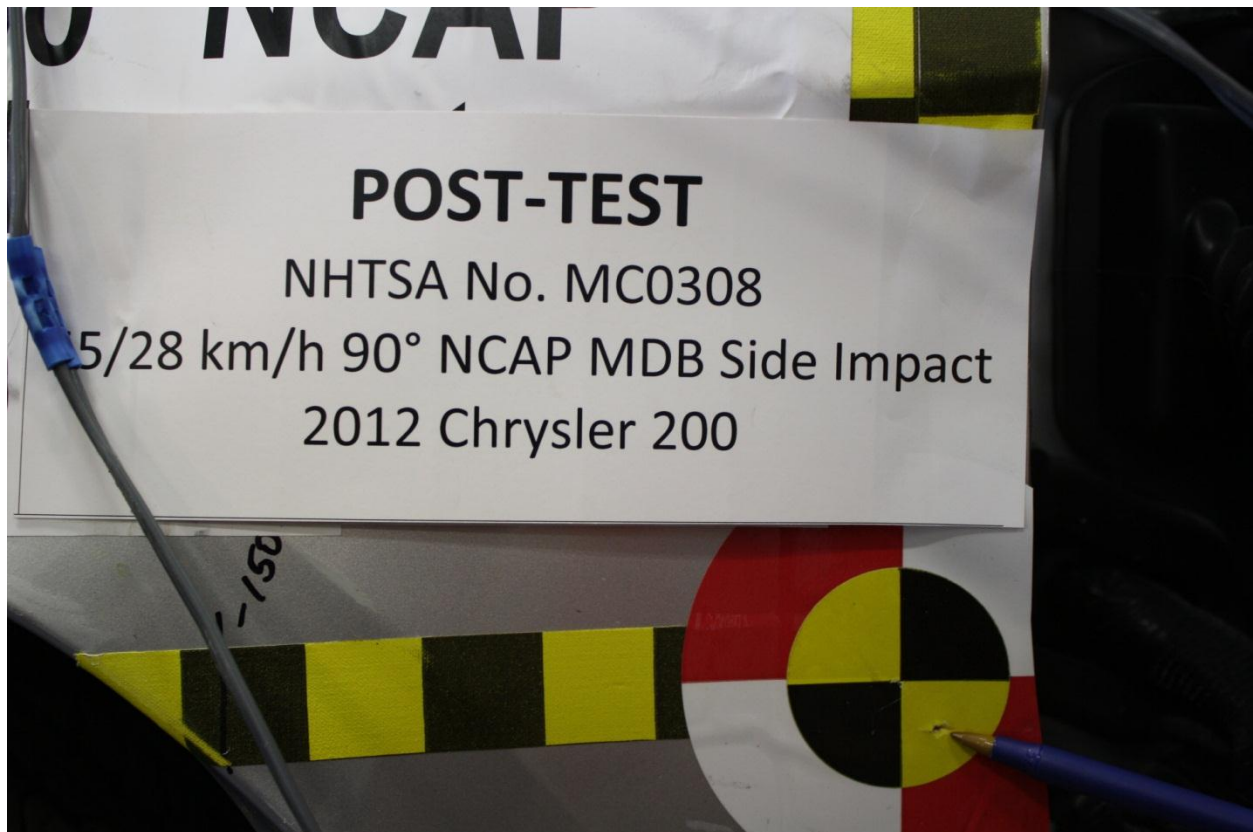


Figure A-20: Post-Test Close-Up View of Impact Point Target



Figure A-21: Pre-Test Left Front Door Latch Close-Up

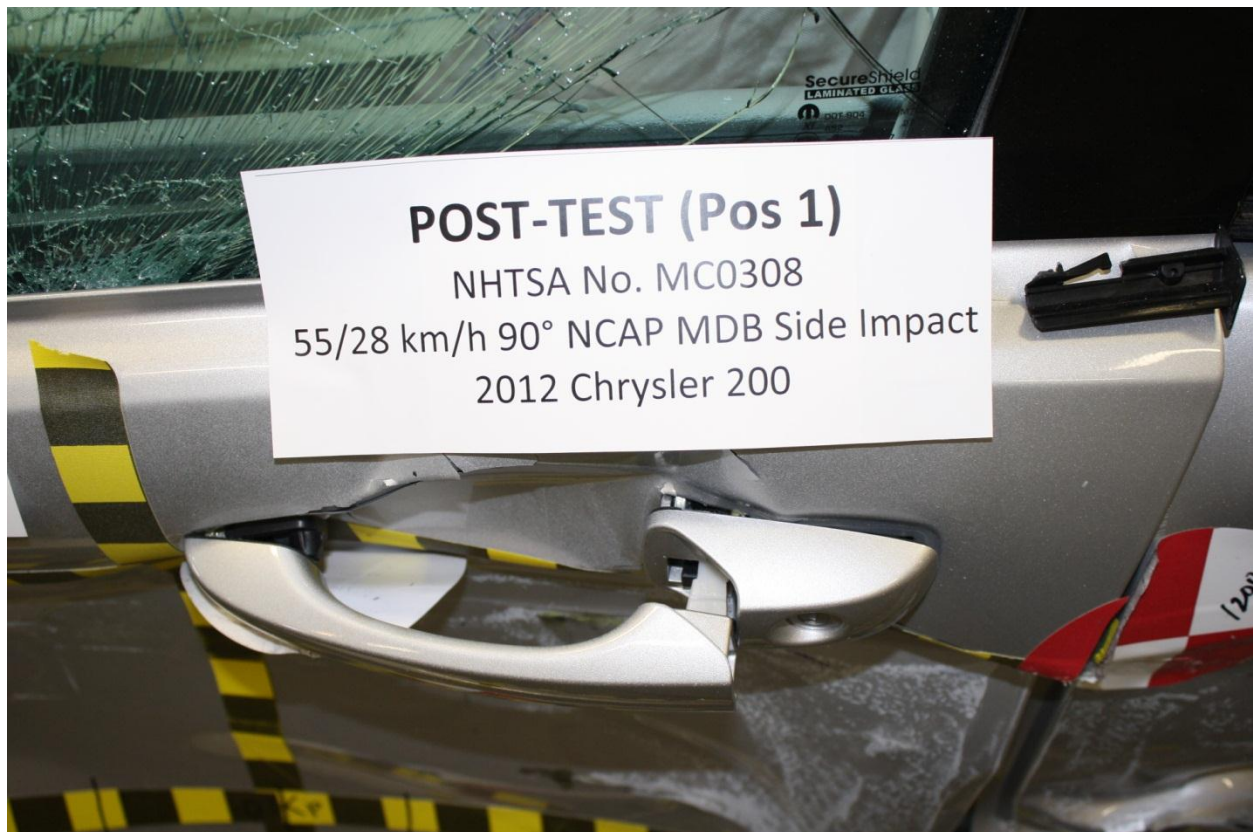


Figure A-22: Post-Test Left Front Door Latch Close-Up

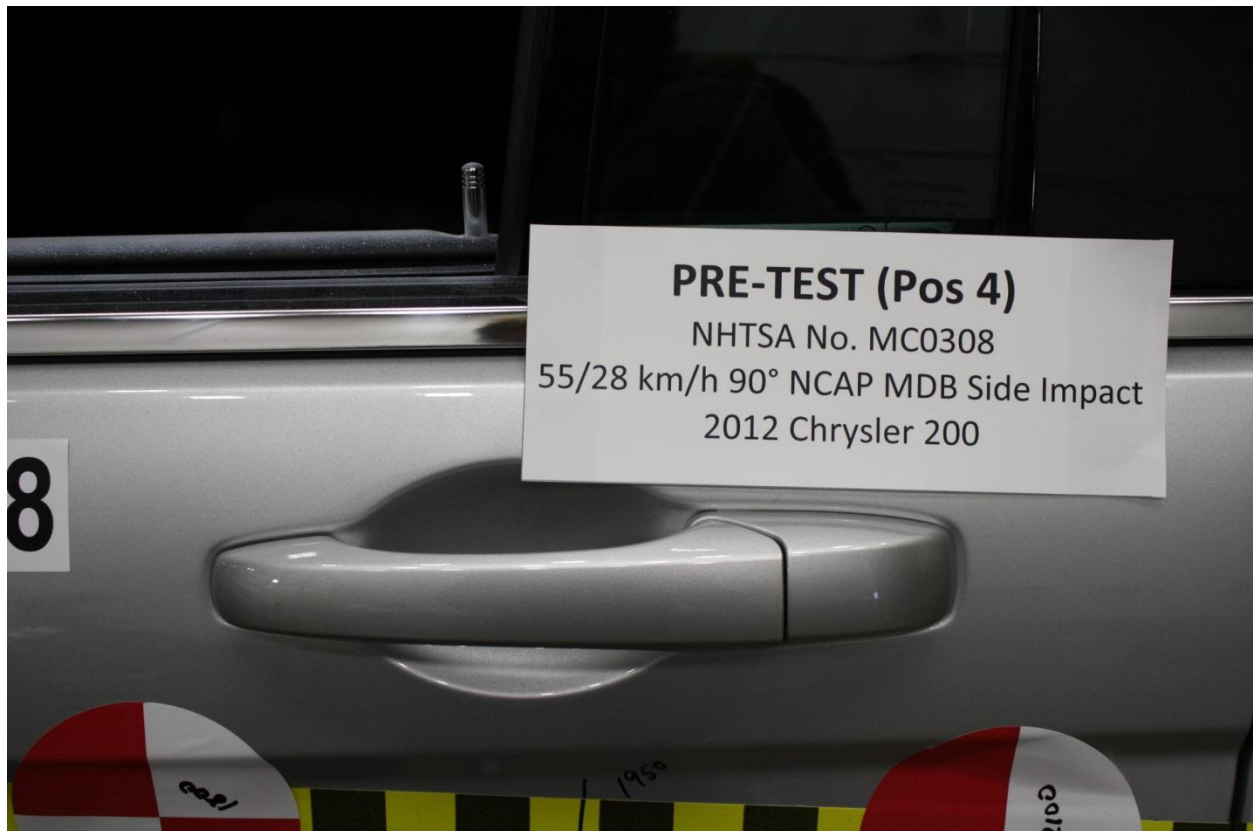


Figure A-23: Pre-Test Left Rear Door Latch Close-Up

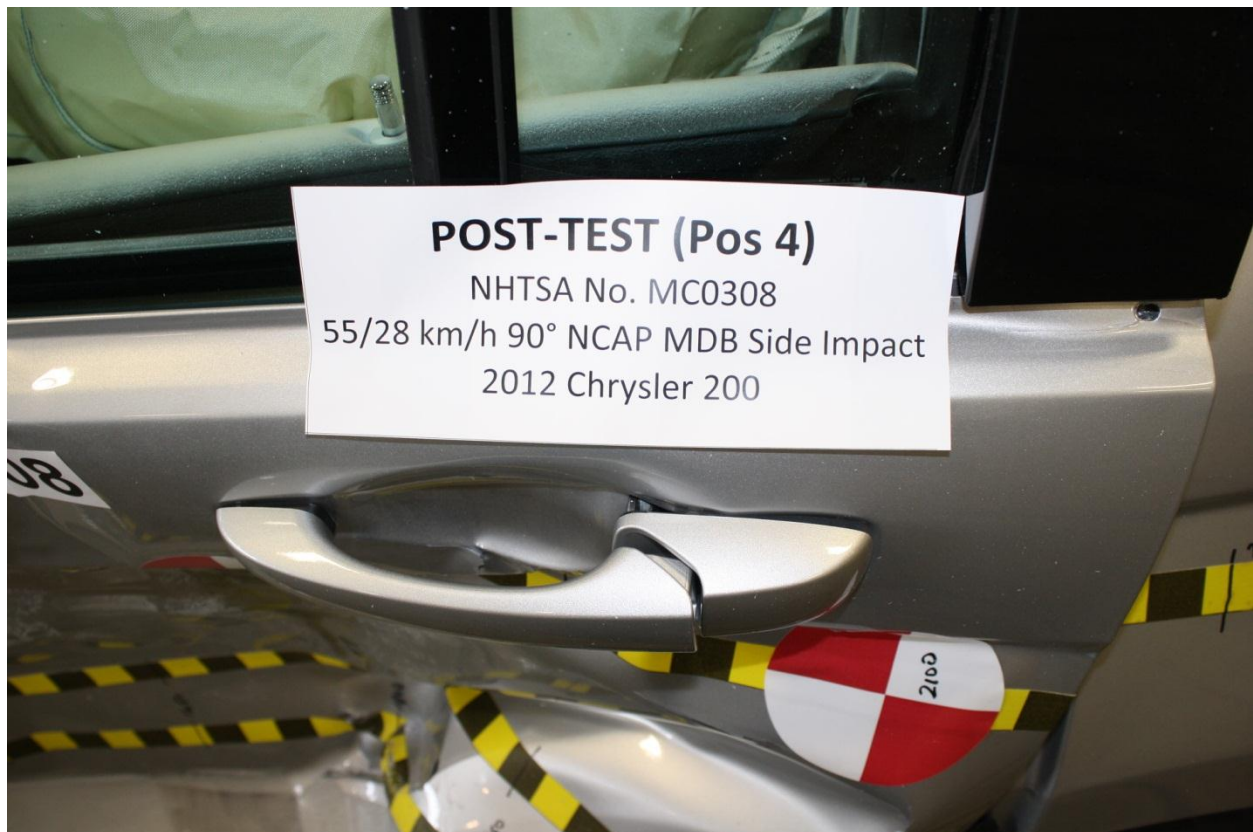


Figure A-24: Post-Test Left Rear Door Latch Close-Up



Figure A-25: Pre-Test Front Close-up View of Driver Dummy

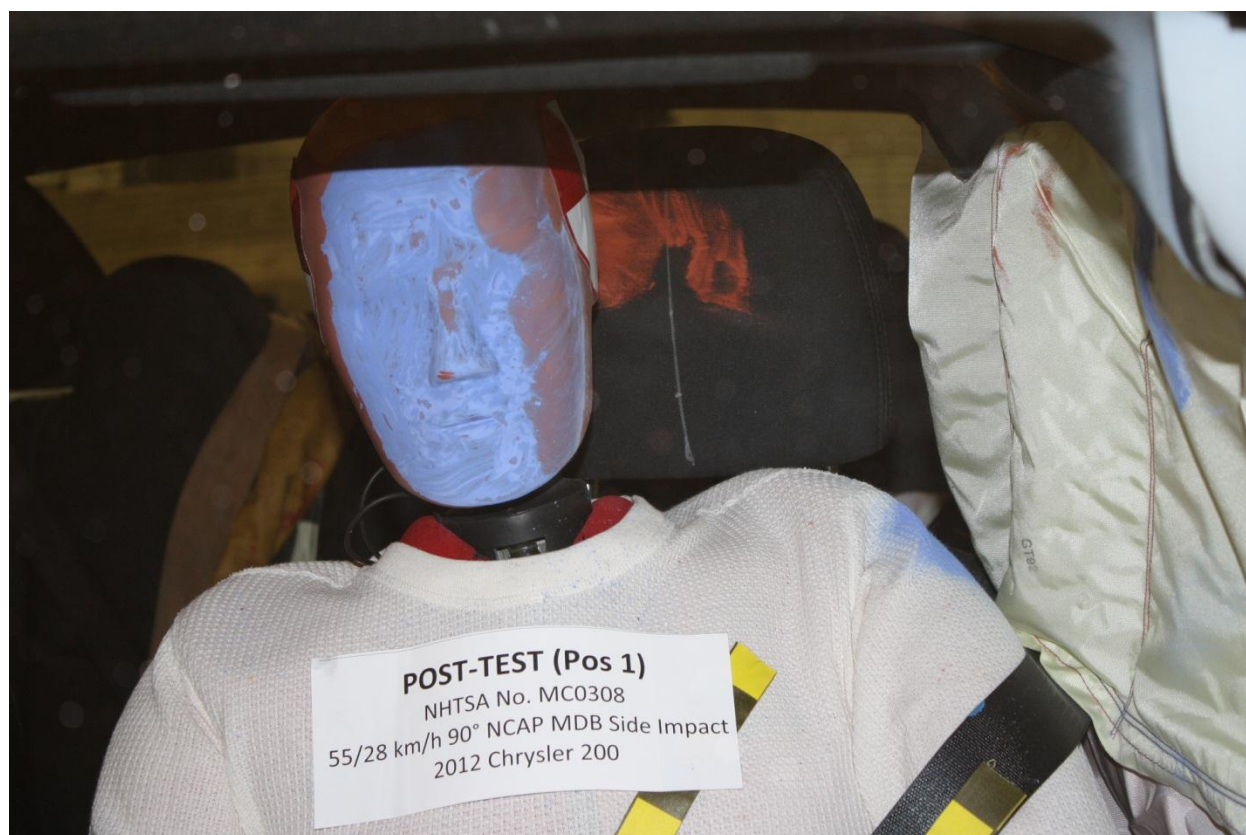


Figure A-26: Post-Test Front Close-up View of Driver Dummy



Figure A-27: Pre-Test Left Side View of Driver Dummy Showing Belt and Chalking



Figure A-28: Pre-Test Left Side View of Driver Dummy Shoulder and Door Top View



Figure A-29: Post-Test Left Side View of Driver Dummy Shoulder and Door Top View



Figure A-30: Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



Figure A-31: Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint



Figure A-32: Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning



Figure A-33: Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan



Figure A-34: Pre-Test Placement of Driver Dummy's Feet

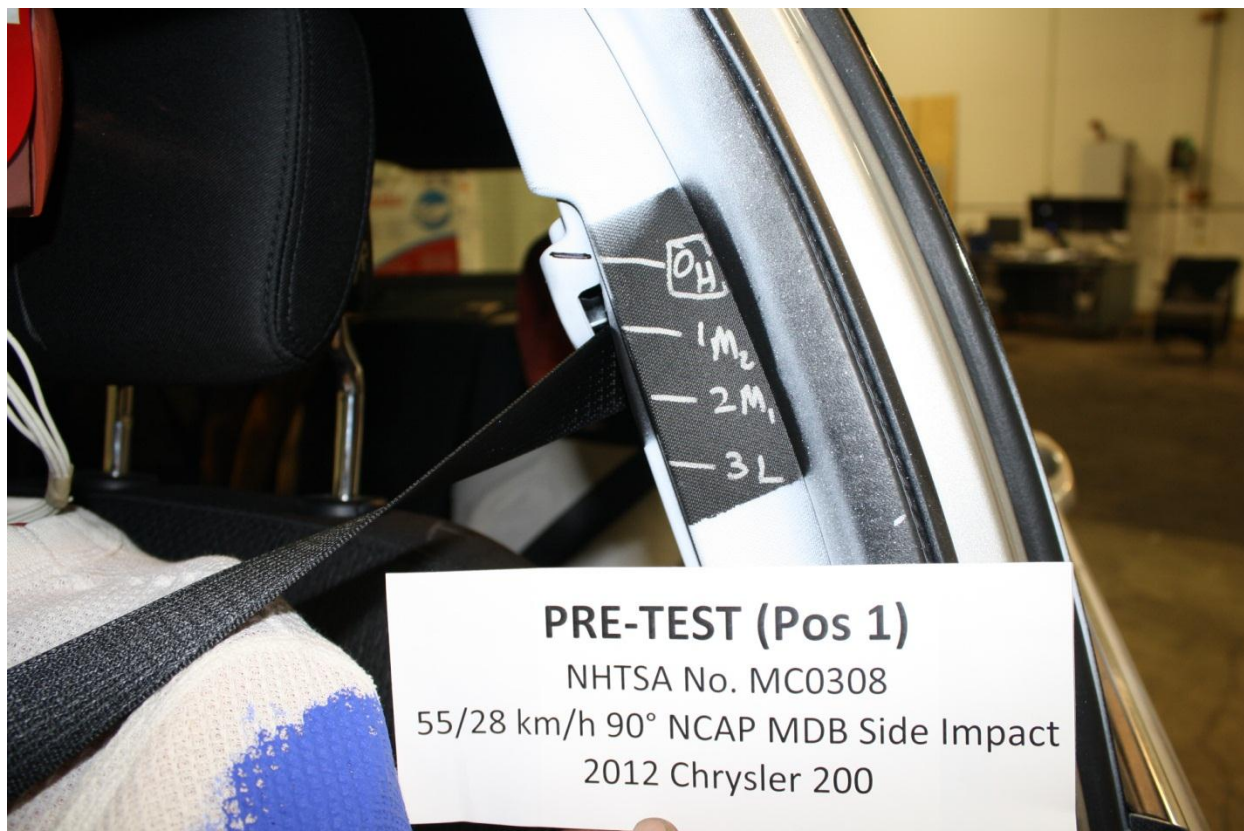


Figure A-35: Pre-Test View of Belt Anchorage for Driver Dummy



Figure A-36: Pre-Test Left Side View of Steering Wheel

Photo Not Available

Figure A-37: View of Disengaged Parking Brake



Figure A-38: Pre-Test View of Parking Brake



Figure A-39: Pre-test Close-Up Left Side View of Driver Seat Track



Figure A-40: Pre-Test Close-Up Left Side View of Driver Seat Back



Figure A-41: Pre-Test Close-Up View of Driver Seat Back or Head Restraint



Figure A-42: Pre-Test Driver Dummy and Door Clearance View



Figure A-43: Post-Test Driver Dummy and Door Clearance View



Figure A-44: Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



Figure A-45: Post-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



Figure A-46: Pre-Test Driver Inner Door Panel View



Figure A-47: Post-Test Driver Inner Door Panel View

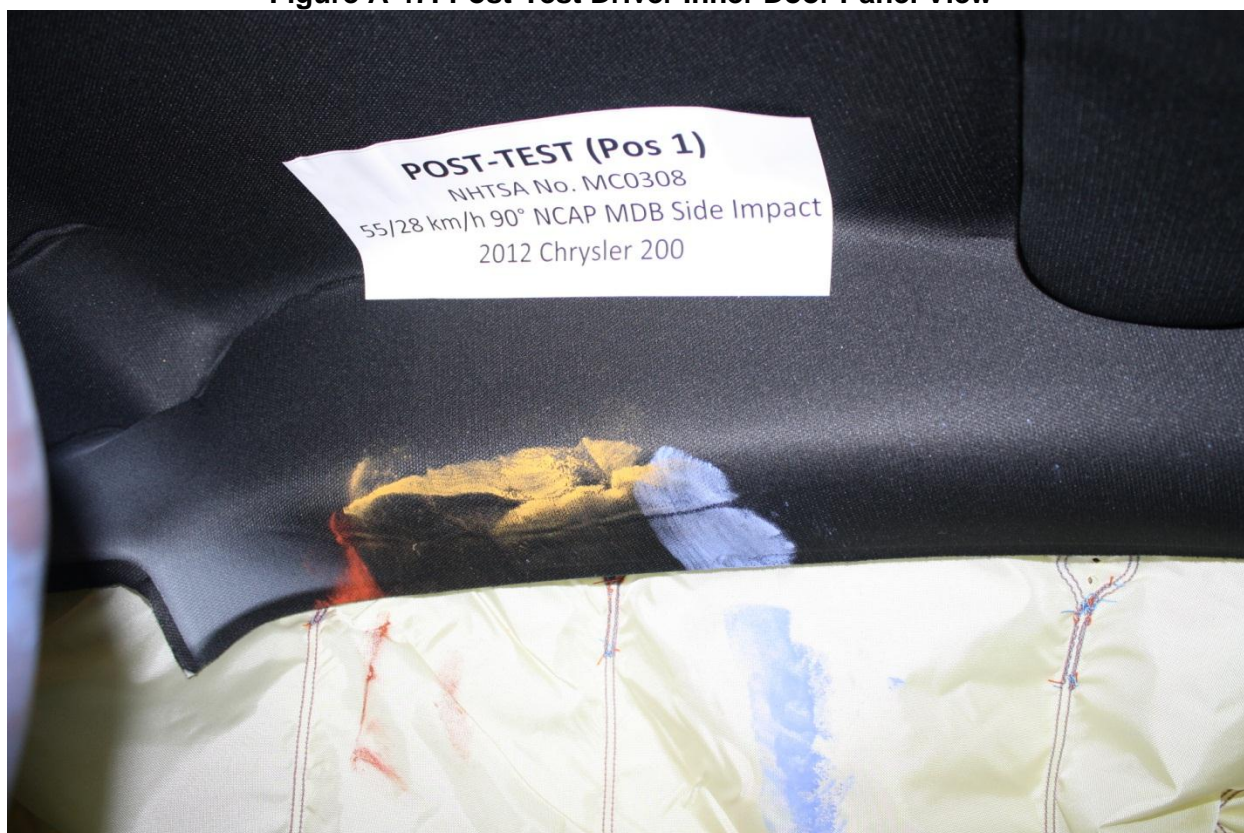


Figure A-48: Post-Test Driver Dummy Close-Up Head Contact with Vehicle View



Figure A-49: Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View



Figure A-50: Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View



Figure A-51: Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View



Figure A-52: Post-Test Driver Dummy Close-Up Pelvis Contact View

Photo Not Applicable

Figure A-53: Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View



Figure A-54: Pre-Test Left Side View of Passenger Dummy Showing Belt and Chalking



Figure A-55: Pre-Test Left Side View of Passenger Dummy Shoulder and Door Top View



Figure A-56: Post-Test Left Side View of Passenger Dummy Shoulder and Door Top View



Figure A-57: Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning



Figure A-58: Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint



Figure A-59: Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning

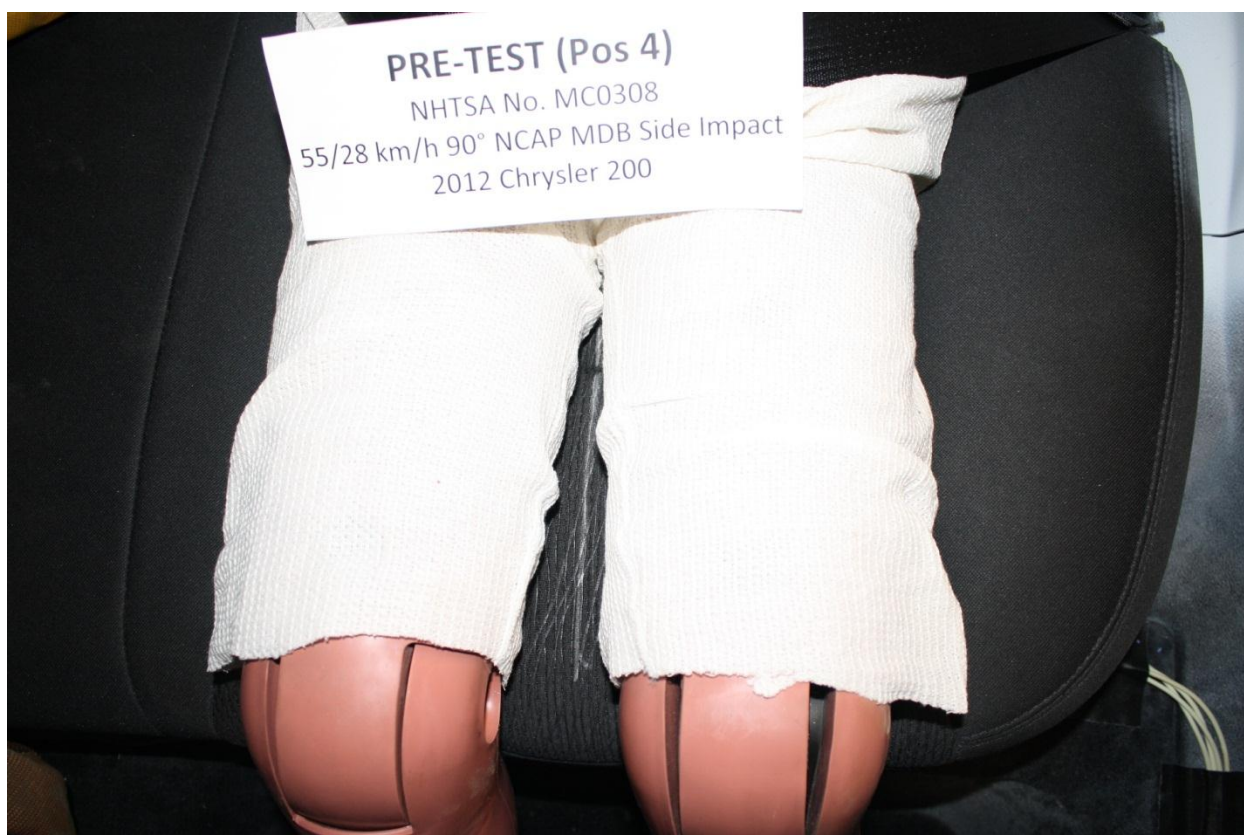


Figure A-60: Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan

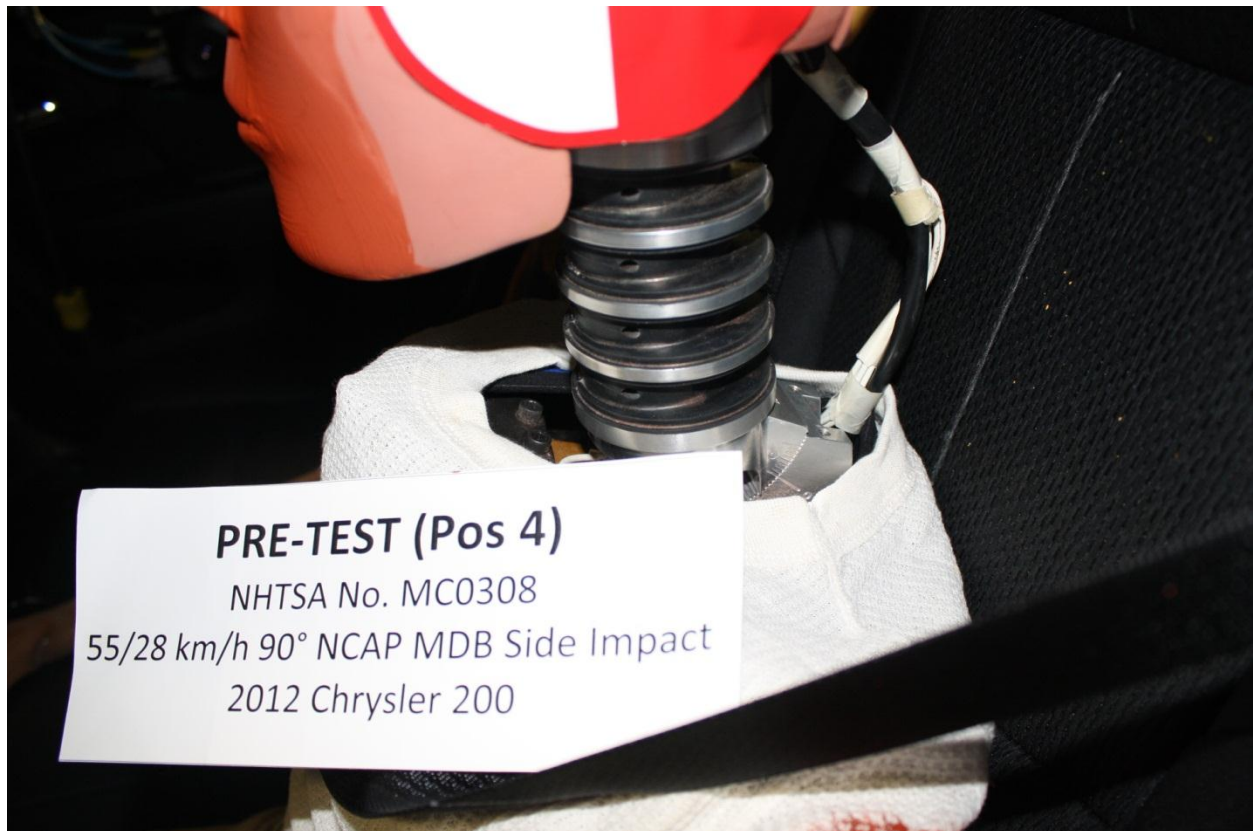


Figure A-61: Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket

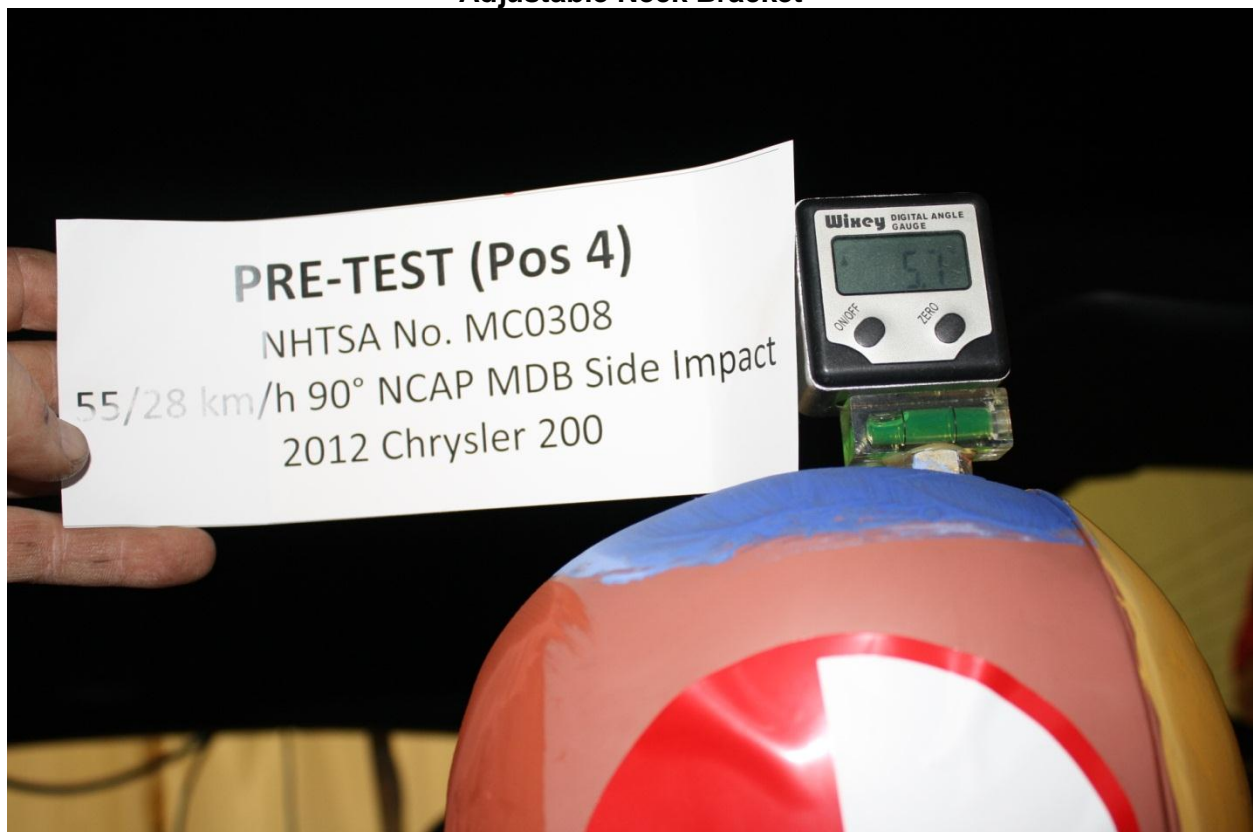


Figure A-62: Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level



Figure A-63: Pre-Test Placement of Rear Passenger Dummy's Feet

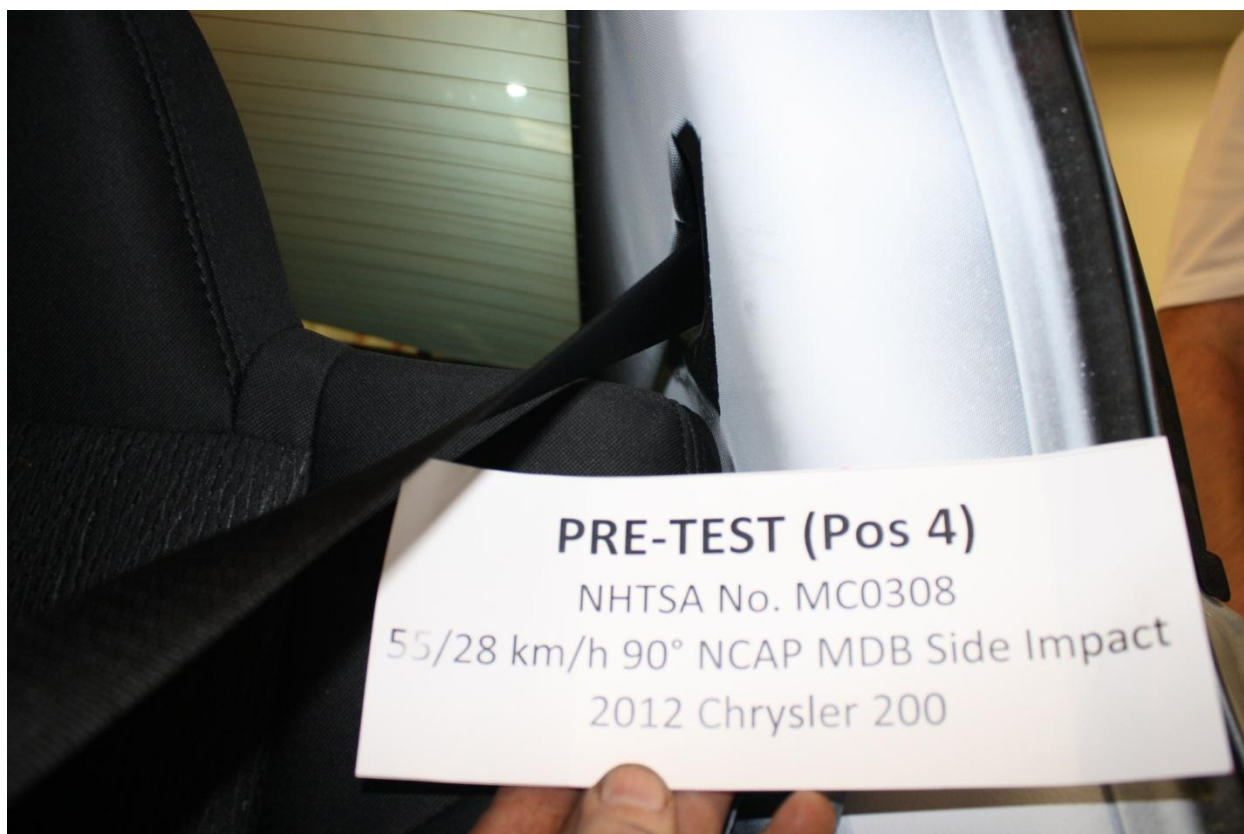


Figure A-64: Pre-Test View of Belt Anchorage for Rear Passenger Dummy



Figure A-65: Pre-Test Close-Up Left Side View of Rear Passenger Seat



Figure A-66: Pre-Test Close-Up Left Side View of Rear Passenger Seat Back



Figure A-67: Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint



Figure A-68: Pre-Test Passenger Dummy and Door Clearance View



Figure A-69: Post-Test Passenger Dummy and Door Clearance View



Figure A-70: Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



Figure A-71: Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



Figure A-72: Pre-Test Passenger Inner Door Panel View



Figure A-73: Post-test Passenger Inner Door Panel View



Figure A-74: Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle View



Figure A-75: Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Airbag View



Figure A-76: Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View

Photo Not Applicable

Figure A-77: Post-Test Rear Passenger Dummy Close-Up Torso Contact with Side Airbag View

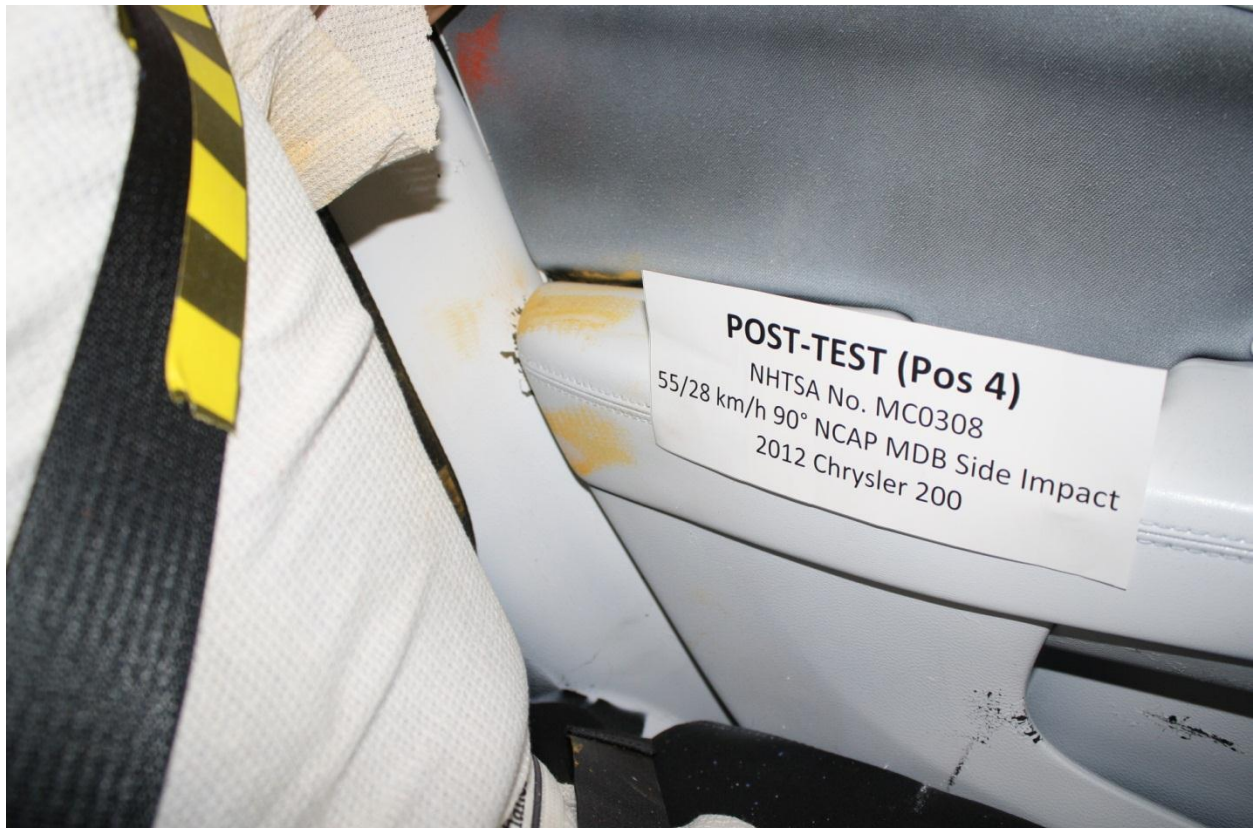


Figure A-78: Post-Test Rear Passenger Dummy Close-Up Pelvis Contact View

Photo Not Applicable

Figure A-79: Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View

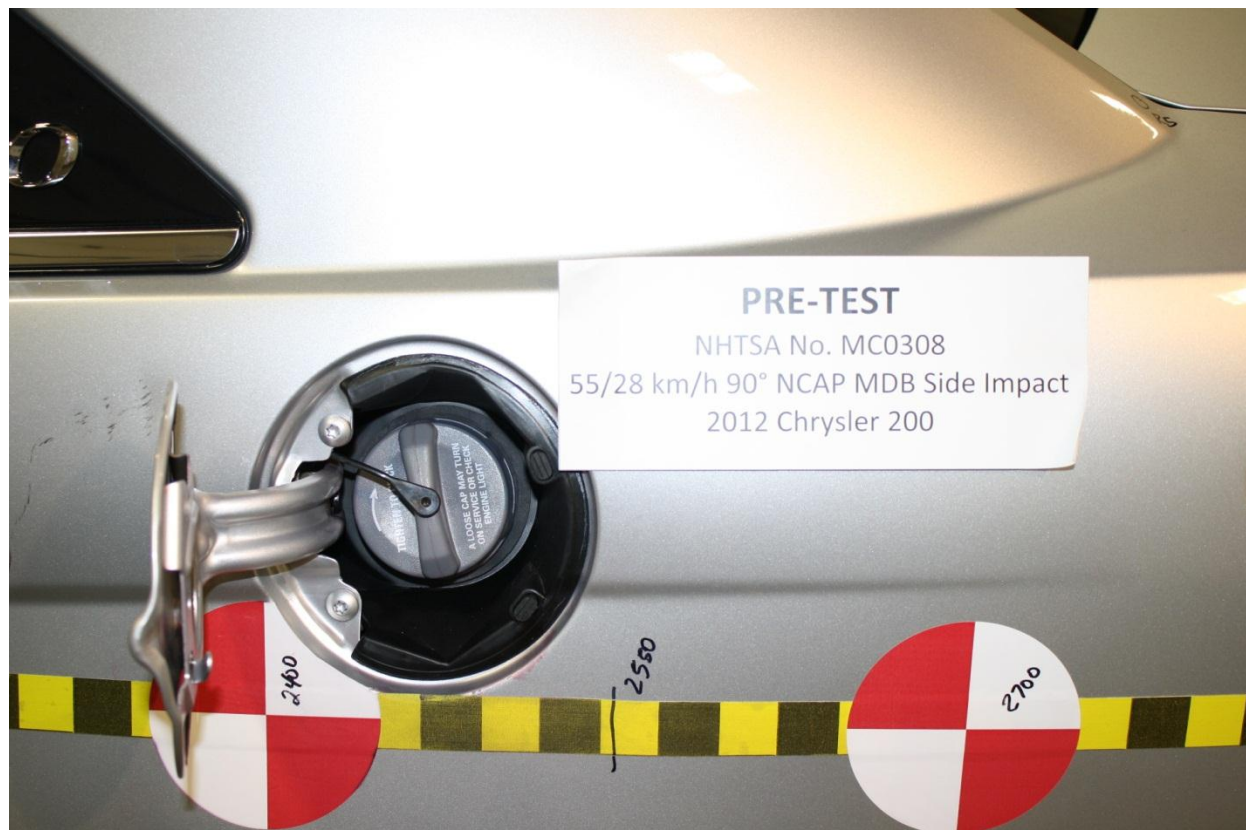


Figure A-80: Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



Figure A-81: Post-Test View of Fuel Filler Cap or Fuel Filler Neck



Figure A-82: Pre-Test Front View of MDB Impactor Face



Figure A-83: Post-Test Front View of MDB Impactor Face



Figure A-84: Pre-Test Top View of MDB Impactor Face



Figure A-85: Post-Test Top View of MDB Impactor Face



Figure A-86: Pre-Test Left Side View of MDB Impactor Face



Figure A-87: Post-Test Left Side View of MDB Impactor Face



Figure A-88: Pre-Test Right Side View of MDB Impactor Face



Figure A-89: Post-Test Right Side View of MDB Impactor Face

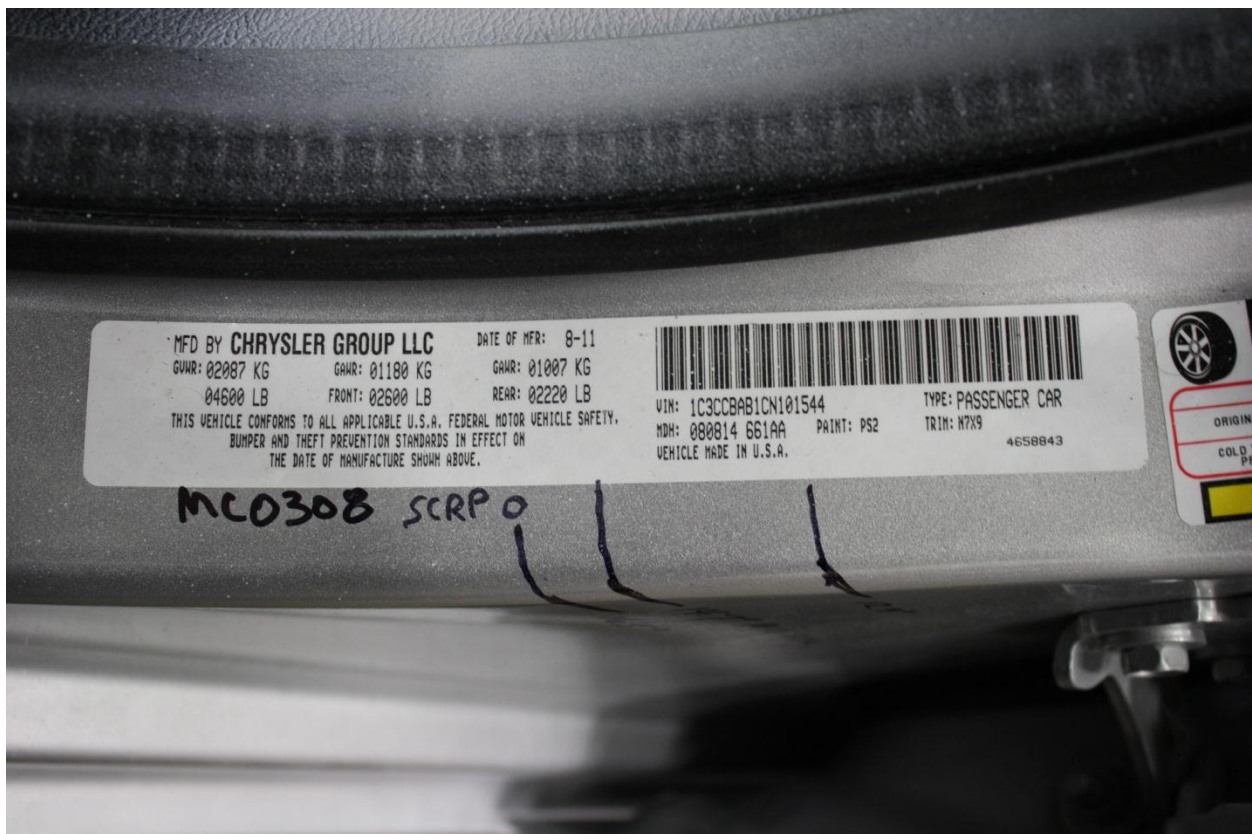


Figure A-90: Close-Up View of Vehicle's Certification Label

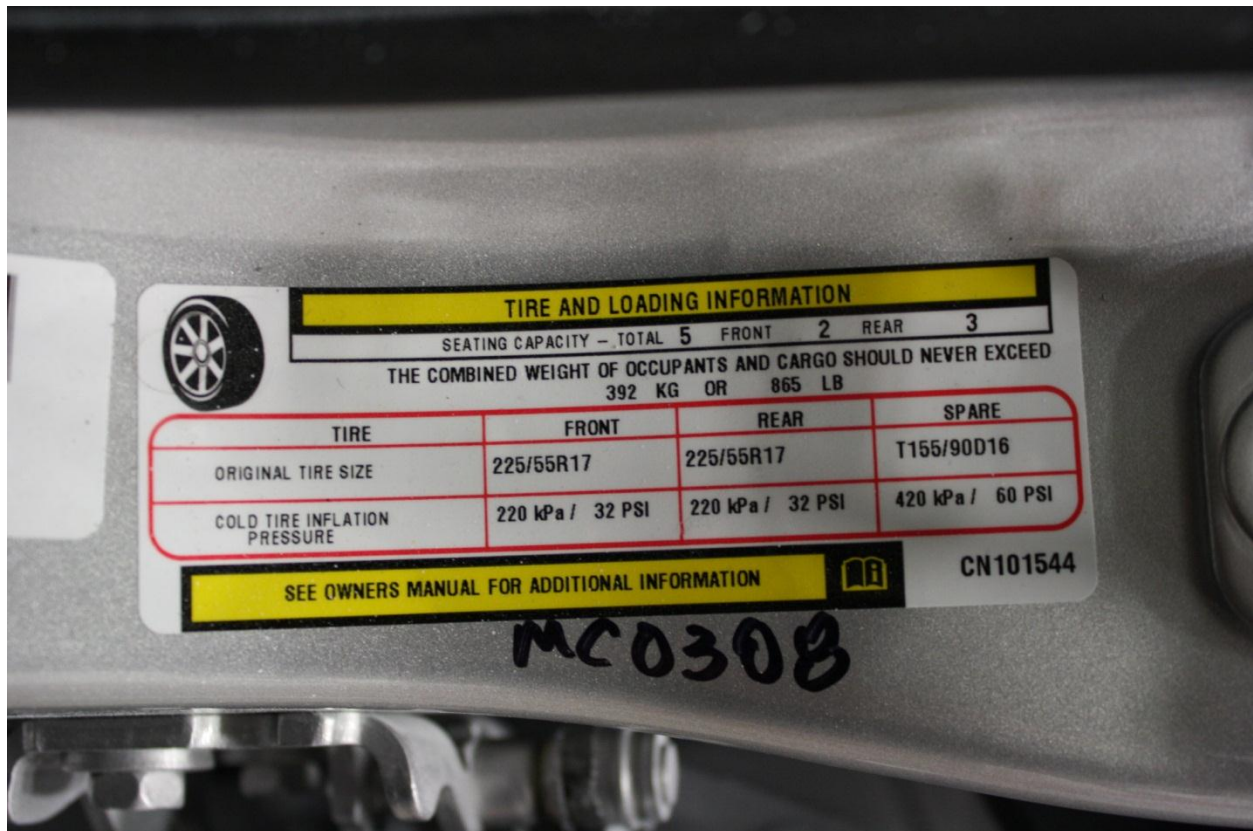


Figure A-91: Close-Up View of Vehicle's Tire Information Placard or Label

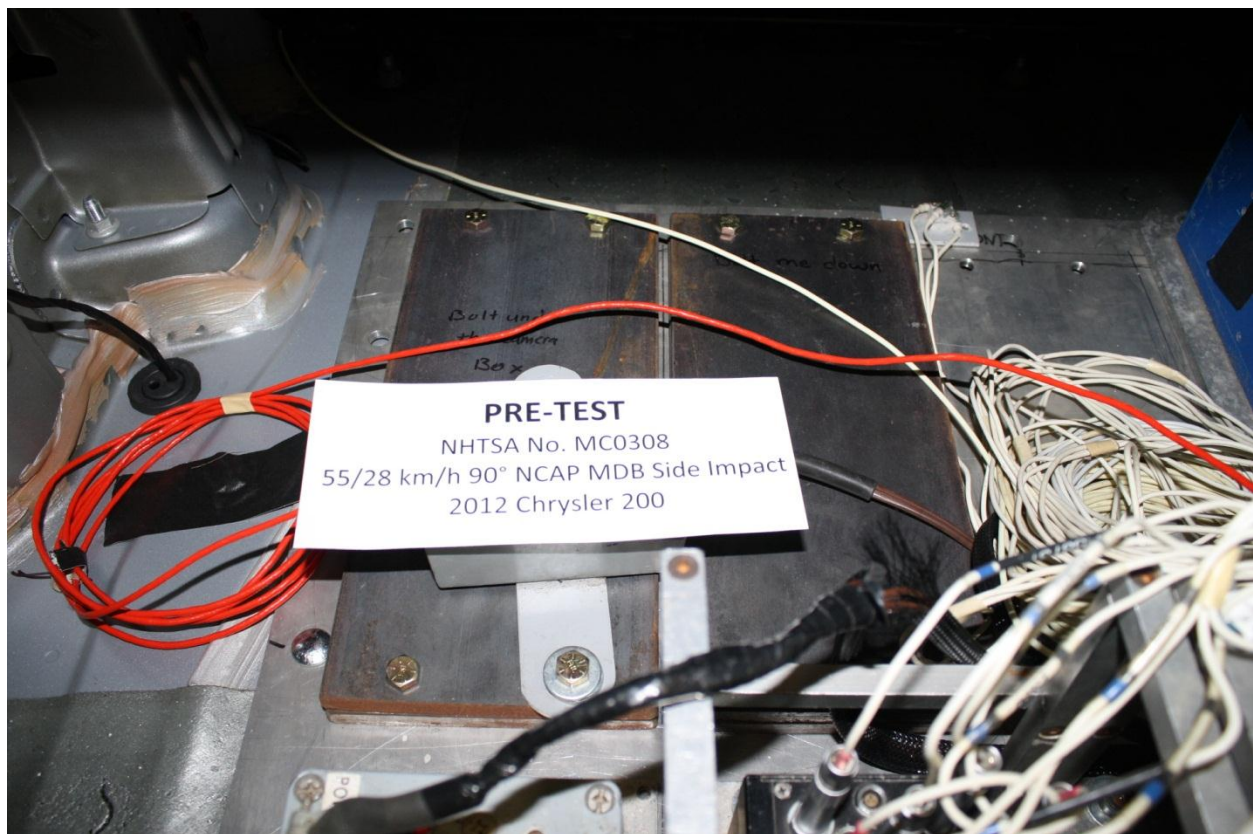


Figure A-92: Pre-Test Ballast View



Figure A-93: Post-Test Primary and Redundant Speed Trap Read-Out



Figure A-94: FMVSS No. 301 Static Rollover 0 Degrees

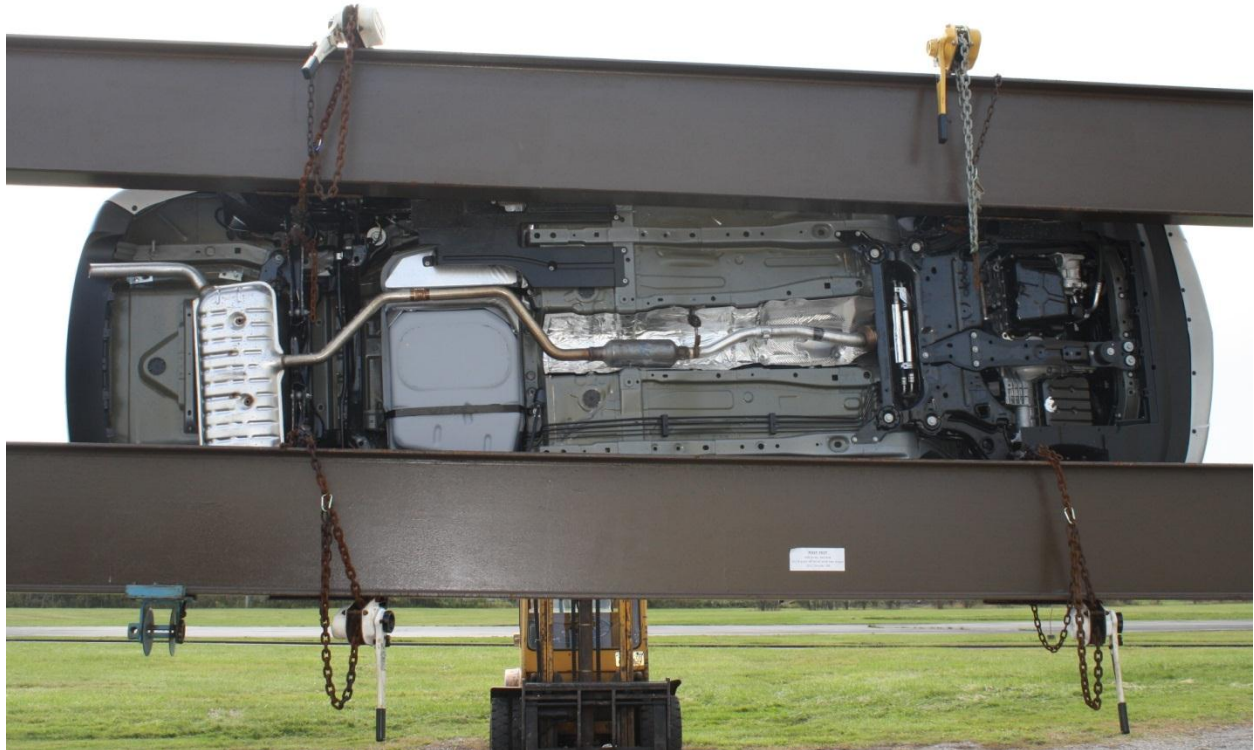


Figure A-95: FMVSS No. 301 Static Rollover 90 Degrees



Figure A-96: FMVSS No. 301 Static Rollover 180 Degrees



Figure A-97: FMVSS No. 301 Static Rollover 270 Degrees



Figure A-98: FMVSS No. 301 Static Rollover 360 Degrees



Figure A-99: Impact Event

CHRYSLER 2012 200 LX

THIS VEHICLE IS MANUFACTURED TO MEET SPECIFIC UNITED STATES REQUIREMENTS. THIS VEHICLE IS NOT MANUFACTURED FOR SALE OR REGISTRATION OUTSIDE OF THE UNITED STATES.

MANUFACTURER'S SUGGESTED RETAIL PRICE OF THIS MODEL INCLUDING DEALER PREPARATION

Base Price: **\$18,995**

CHRYSLER 200 LX
 Exterior Color: Bright Silver Metallic Clear Coat Exterior Paint
 Interior Color: Black Interior Color
 Interior: Premium Cloth Bucket Seats
 Engine: 2.4-Liter 14 F2EV 16-Valve Dual VVT Engine
 Transmission: 4-Speed Automatic VLP Transmission

STANDARD EQUIPMENT (UNLESS REPLACED BY OPTIONAL EQUIPMENT)

FUNCTIONAL/SAFETY FEATURES
 Advanced Multistage Front Airbags
 Supplemental Front Seat-Mounted Side Airbags
 Supplemental Side Front and Rear Airbags
 Active Head Restraints, Front Seat
 Rear Center 3-Point Seat Belt
 Rear Door Child Protection Locks
 LATCH-Ready Child Seat Anchor System
 Antilock 4-Wheel-Drive Brakes
 Tire Pressure Monitor with Warning Lamp
 Power Rack-and-Pinion Steering
 Electronic Stability Control
 Traction Control
 Variable Intermittent Windshield Wipers
 Sentry Key Theft Deterrent System
 Keyless Entry
 Security Alarm
 Speed Control
 Power Locks
 Power Windows with Driver's One-Touch-Down Feature
 Rearview Day / Night Mirror
 Rear Window Defroster
 Power Trunklid Release
 Power Accessory Delay
 Acoustic Laminated Windshield & Front Door Glass

INTERIOR FEATURES
 Air Conditioning
 Manual Seat Height Adjuster
 Driver's Manually Adjustable Lumbar Support
 Media Center 130 CD/MP3
 4 Speakers
 Audio Jack Input for Mobile Devices
 Steering Wheel-Mounted Audio Controls
 Instrument Cluster w/LED Lighting

OPTIONAL EQUIPMENT
Customer Preferred Package 25H
 2.4-Liter 14 F2EV 16-Valve Dual VVT Engine
 18.5-Gallon Fuel Tank

DESTINATION CHARGE \$750

TOTAL PRICE: * \$19,745

WARRANTY COVERAGE
 5-year or 100,000-mile Powertrain Limited Warranty.
 3-year or 36,000-mile Basic Limited Warranty.
 24-hour towing assistance; certain restrictions apply.
 Ask Dealer for a copy of the limited warranties or see your owner's manual for details.

5 YEAR / 100,000 MILE POWERTRAIN WARRANTY

EPA Fuel Economy Estimates
 These estimates reflect new EPA methods beginning with 2008 models.

CITY MPG **21**
 Expected range for most drivers: 17 to 25 MPG

Estimated Annual Fuel Cost **\$1,876**
 based on 15,000 miles at \$3.00 per gallon

HIGHWAY MPG **30**
 Expected range for most drivers: 24 to 36 MPG

Combined Fuel Economy
 This vehicle: **24**
 All midsize cars: 10 to 30

See the **FREE** Fuel Economy Guide at dealers or www.fueleconomy.gov

GOVERNMENT SAFETY RATINGS

Frontal Crash	Driver Passenger	Not Rated
Side Crash	Front seat Rear seat	Not Rated Not Rated
Rollover	★★★★	

Star ratings based on the risk of injury in a frontal impact.
 Star ratings based on the risk of injury in a side impact.
 Star ratings based on the risk of rollover in a single vehicle crash.
 Star ratings range from 1 to 5 stars (★★★★) with 5 being the highest.
 Source: National Highway Traffic Safety Administration (NHTSA).

PARTS CONTENT INFORMATION
 FOR VEHICLES IN THIS CARLINE:
 U.S./CANADIAN PARTS CONTENT: 73 %
 NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION, OR OTHER NON-PARTS COSTS.
 FOR THIS VEHICLE:
 FINAL ASSEMBLY POINT:
 STERLING HTS., MICH., U.S.A.
 COUNTRY OF ORIGIN:
 ENGINE: UNITED STATES
 TRANSMISSION: UNITED STATES

www.safercar.gov or 1-888-327-4236

Bumper Performance
 This vehicle is equipped with bumper systems that can withstand a frontal barrier impact speed of 2.5 miles per hour and a rear barrier impact speed of 2.5 miles per hour with no more damage than allowed by the Federal bumper standard. The Federal bumper standard allows damage to the bumpers and attaching hardware and specifies barrier tests to be conducted at 2.5 miles per hour.

Assembly Point of Entry: STERLING HTS., MICH., U.S.A.
 VIN: 1C3-CC2A81CN-101544
 140000 8963

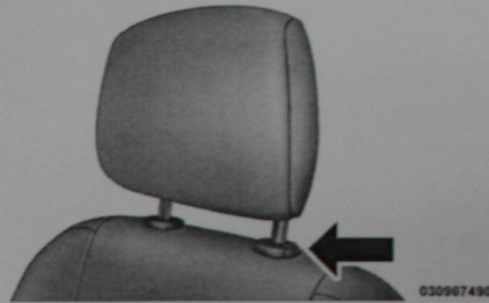
SALES TAX: \$1,000.00
 17 CANADA: CHRYSLER, JEEP, DODGE
 18 U.S.: CHRYSLER, JEEP, DODGE
 19 U.S.: CHRYSLER, JEEP, DODGE
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 98 U.S.: CHRYSLER, JEEP, DODGE
 99 U.S.: CHRYSLER, JEEP, DODGE
 100 U.S.: CHRYSLER, JEEP, DODGE

Figure A-100: Monroney Label

identified by any markings, only through visual inspection of the head restraint. The head restraint will be split in two halves, with the front half being soft foam and trim, the back half being decorative plastic.

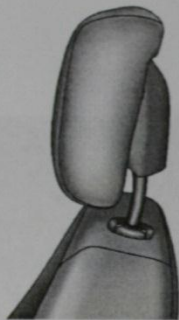
When AHRs deploy during a rear impact, the front half of the head restraint extends forward to minimize the gap between the back of the occupant's head and the AHR. This system is designed to help prevent or reduce the extent of injuries to the driver and front passenger in certain types of rear impacts. Refer to "Occupant Restraints" in "Things To Know Before Starting Your Vehicle" for further information.

To raise the head restraint, pull upward on the head restraint. To lower the head restraint, press the push button, located at the base of the head restraint, and push downward on the head restraint.



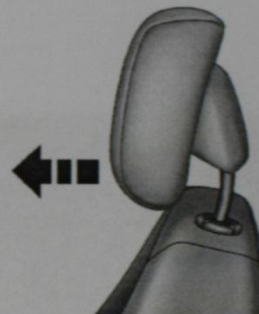
Push Button

For comfort the Active Head Restraints can be tilted forward and rearward. To tilt the head restraint closer to the back of your head, pull forward on the bottom of the head restraint. Push rearward on the bottom of the head restraint to move the head restraint away from your head.



022607494

Active Head Restraint (Normal Position)



030907533

Active Head Restraint (Tilted)

NOTE:

- The head restraints should only be removed by qualified technicians, for service purposes only. If either of the head restraints require removal, see your authorized dealer.

- In the event of deployment of an Active Head Restraint, refer to "Occupant Restraints/Resetting Active Head Restraints (AHR)" in "Things to Know Before Starting Your Vehicle" for further information.

WARNING!

- Do not place items over the top of the Active Head Restraint, such as coats, seat covers or portable DVD players. These items may interfere with the operation of the Active Head Restraint in the event of a collision and could result in serious injury or death.

(Continued)

WARNING! (Continued)

- Active Head Restraints may be deployed if they are struck by an object such as a hand, foot or loose cargo. To avoid accidental deployment of the Active Head Restraint ensure that all cargo is secured, as loose cargo could contact the Active Head Restraint during sudden stops. Failure to follow this warning could cause personal injury if the Active Head Restraint is deployed.

Head Restraints — Rear Seats

The rear seat head restraints are fixed and cannot be adjusted. For proper routing of a Child Seat Tether refer to "Occupant Restraints" in "Things to Know Before Starting Your Vehicle" for further information.

Figure A-101: Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

Photo Not Applicable

No Contact

Figure A-102: Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

The following table and respective vehicle and dummy (filtered) data plots shall be included in this appendix:

TABLE OF DATA PLOTS

Driver & Passenger Dummy Instrumentation Plots

No.	Description	Page
1	Driver Head Acceleration (X) Primary vs. Time	B-4
2	Driver Head Acceleration (Y) Primary vs. Time	B-4
3	Driver Head Acceleration (Z) Primary vs. Time	B-5
4	Driver Head Resultant Acceleration Primary vs. Time	B-5
5	Driver Upper Thorax Rib Deflection (Y) vs. Time	B-6
6	Driver Middle Thorax Rib Deflection (Y) vs. Time	B-6
7	Driver Lower Thorax Rib Deflection (Y) vs. Time	B-7
8	Driver Thorax Rib Deflection Maximum vs. Time	B-7
9	Driver Anterior Abdominal Force (Y) vs. Time	B-8
10	Driver Middle Abdominal Force (Y) vs. Time	B-8
11	Driver Posterior Abdominal Force (Y) vs. Time	B-9
12	Driver Total Abdominal Force (Y) vs. Time	B-9
13	Driver Pubic Symphysis Force (Y) vs. Time	B-10
14	Passenger Head Acceleration (X) vs. Time Primary	B-10
15	Passenger Head Acceleration (Y) vs. Time Primary	B-11
16	Passenger Head Acceleration (Z) vs. Time Primary	B-11
17	Passenger Head Resultant Acceleration Primary vs. Time	B-12
18	Passenger Lower Spine T12 Acceleration (X) vs. Time	B-12
19	Passenger Lower Spine T12 Acceleration (Y) vs. Time	B-13
20	Passenger Lower Spine T12 Acceleration (Z) vs. Time	B-13
21	Passenger Lower Spine T12 Resultant Acceleration vs. Time	B-14
22	Passenger Iliac Force on Impact Side (Y) vs. Time	B-14
23	Passenger Acetabulum Force on Impact Side (Y) vs. Time	B-15
24	Passenger Total Pelvic Force on Impact Side (Y) vs. Time	B-15

The following additional data for this test can be obtained from the Research and Development section of the NHTSA website. The website can be found at www.NHTSA.dot.gov.

Additional Driver & Passenger Dummy Instrumentation Data

Driver Lower Spine T12 Acceleration (X)
Driver Lower Spine T12 Acceleration (Y)
Driver Lower Spine T12 Acceleration (Z)
Passenger Upper Thorax Rib Deflection (Y)
Passenger Middle Thorax Rib Deflection (Y)
Passenger Lower Thorax Rib Deflection (Y)
Passenger Upper Abdomen Rib Deflection (Y)
Passenger Lower Abdomen Rib Deflection (Y)
Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
Driver Head Acceleration Redundant (Z)
Passenger Head Acceleration Redundant (X)
Passenger Head Acceleration Redundant (Y)
Passenger Head Acceleration Redundant (Z)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Right Side Sill at Front Seat Acceleration (X)
Right Side Sill at Front Seat Acceleration (Y)
Right Side Sill at Front Seat Acceleration (Z)
Right Side Sill at Rear Seat Acceleration (X)
Right Side Sill at Rear Seat Acceleration (Y)
Right Side Sill at Rear Seat Acceleration (Z)
Left Side Sill at Front Seat Acceleration (Y)
Left Side Sill at Rear Seat Acceleration (Y)
Lower A-Post Acceleration (Y)
Upper A-Post Acceleration (Y)
Lower B-Post Acceleration (Y)
Upper B-Post Acceleration (Y)
Front Seat Track Acceleration (Y)
Rear Seat Track Acceleration (Y)
Right Rear Occupant Compartment Acceleration (Y)
Engine Block (X)
Engine Block (Y)
Rear Floorpan Above Axle Acceleration (X)
Rear Floorpan Above Axle Acceleration (Y)
Rear Floorpan Above Axle Acceleration (Z)

MDB Instrumentation Data

MDB Center of Gravity Acceleration (X)

MDB Center of Gravity Acceleration (Y)

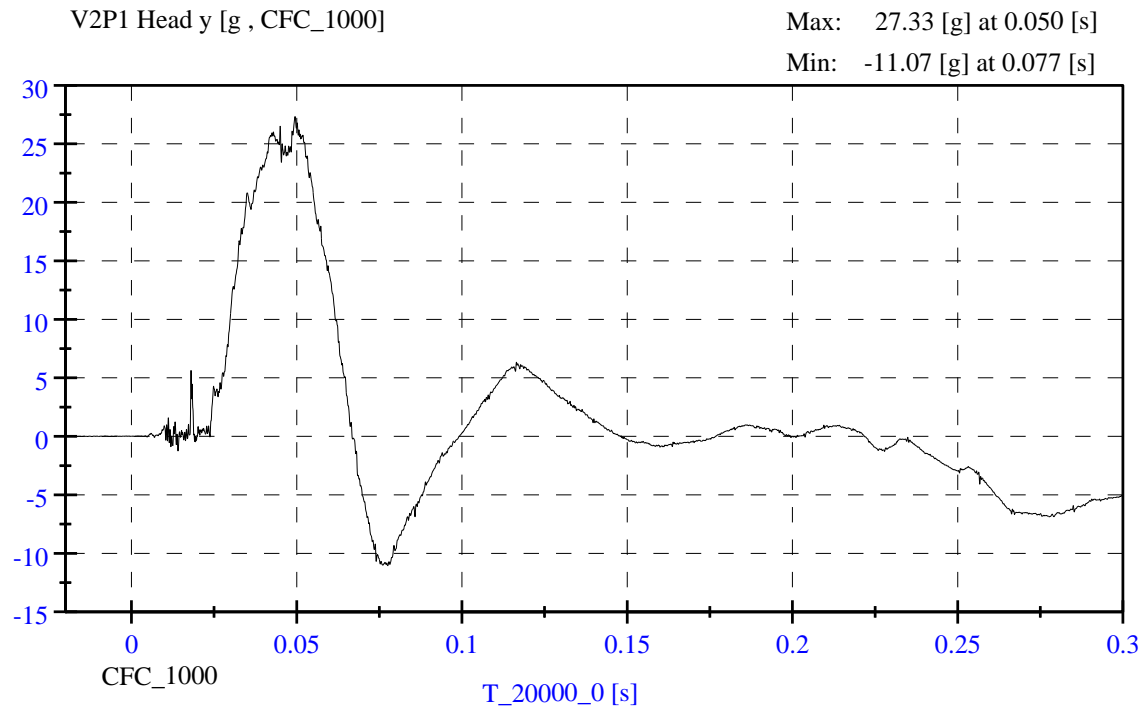
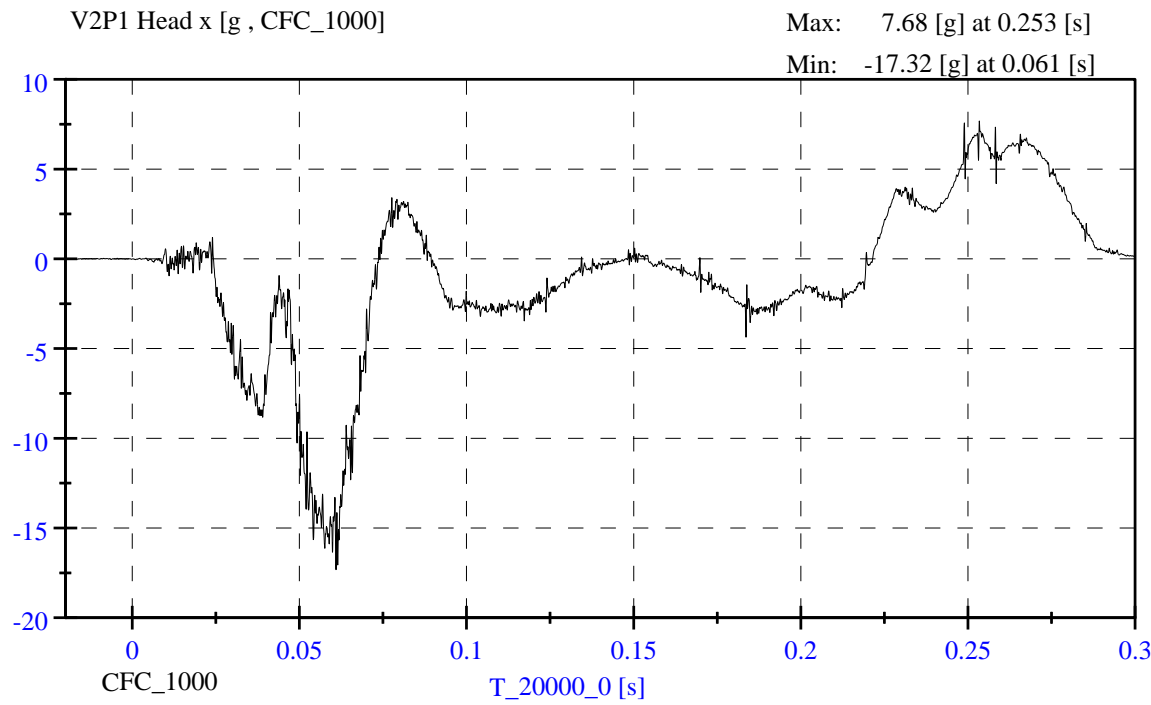
MDB Center of Gravity Acceleration (Z)

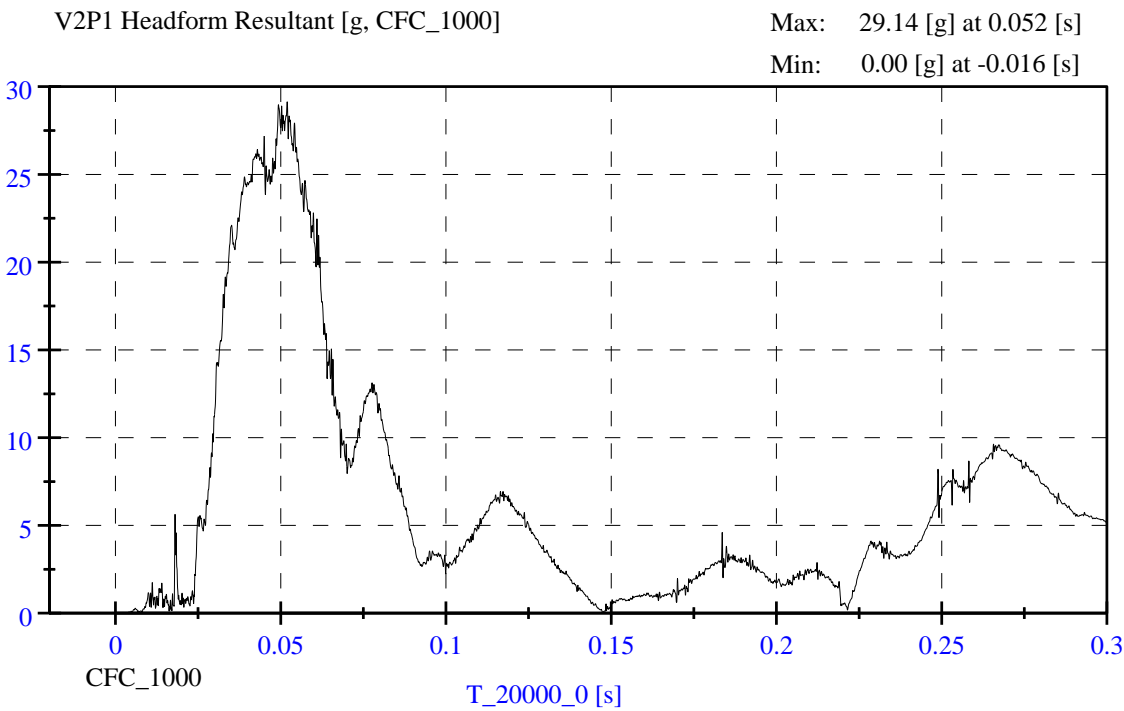
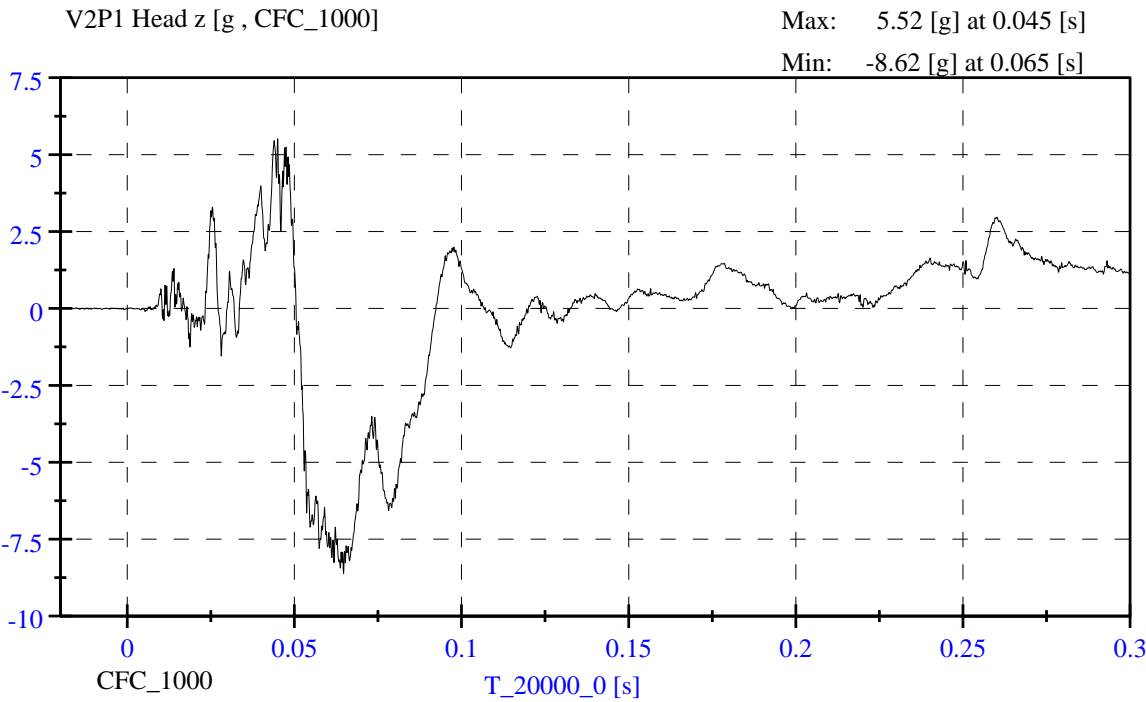
MDB Rear Acceleration (X)

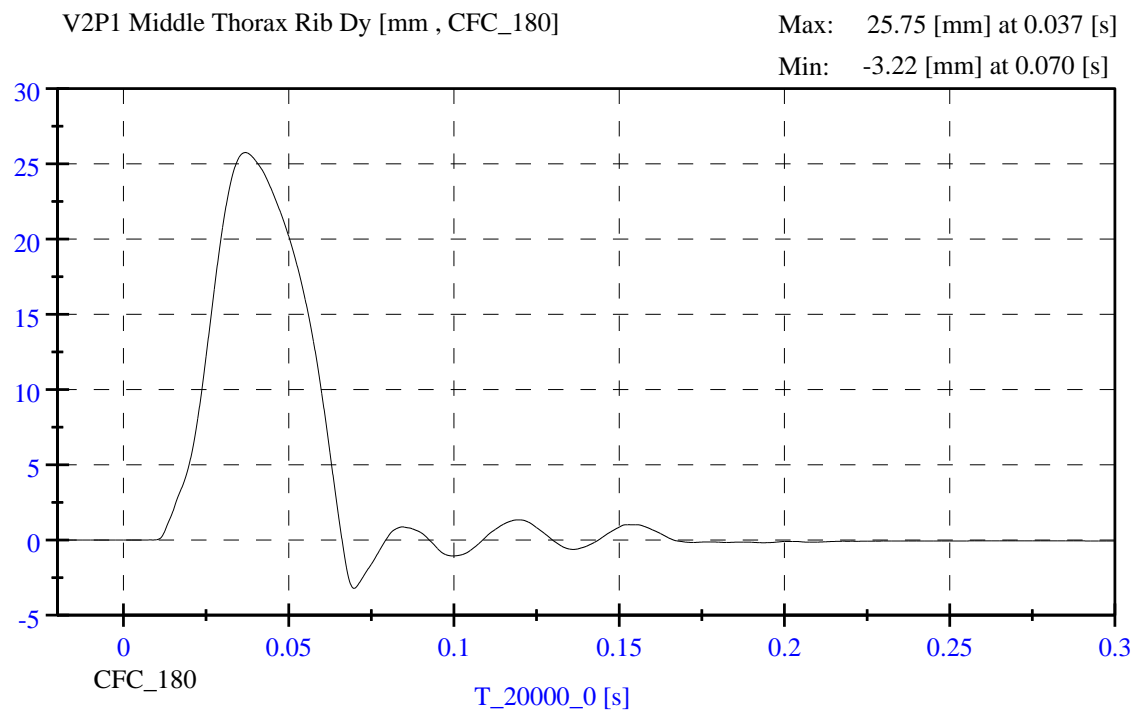
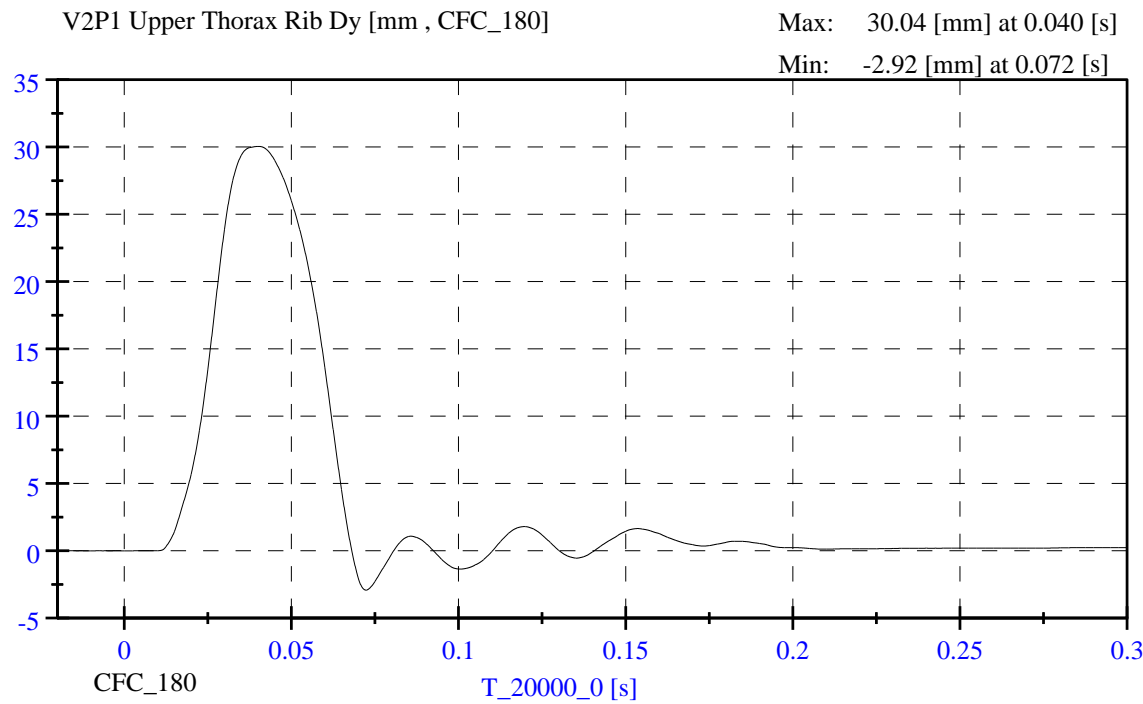
MDB Rear Acceleration (Y)

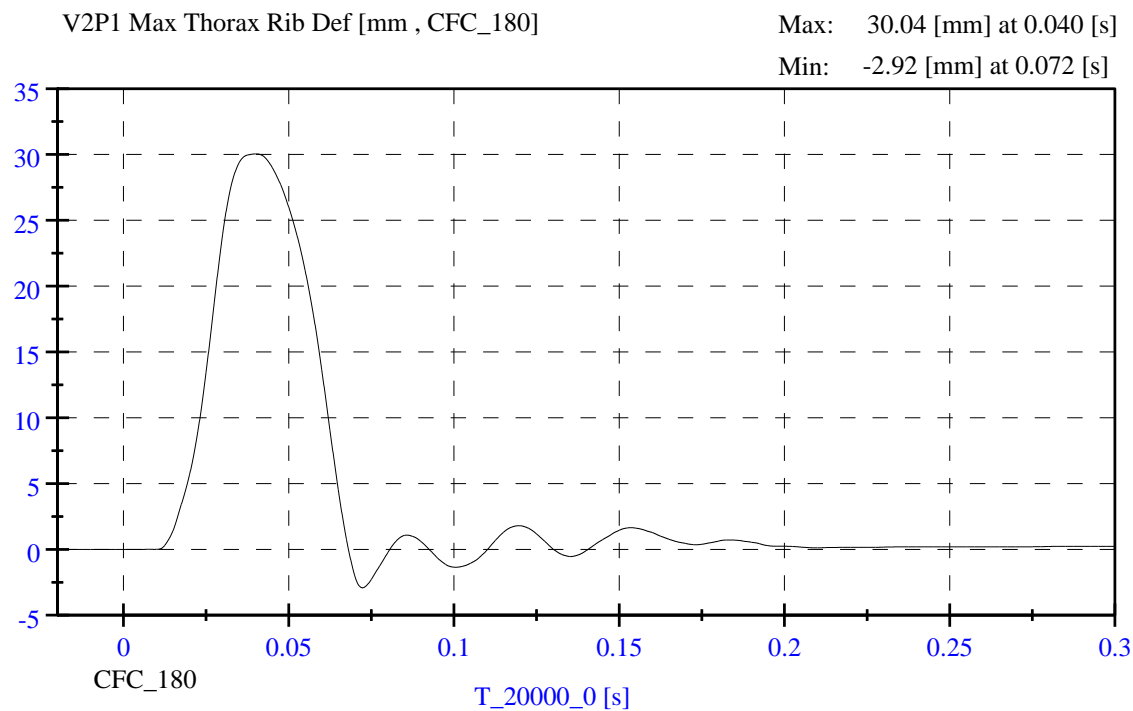
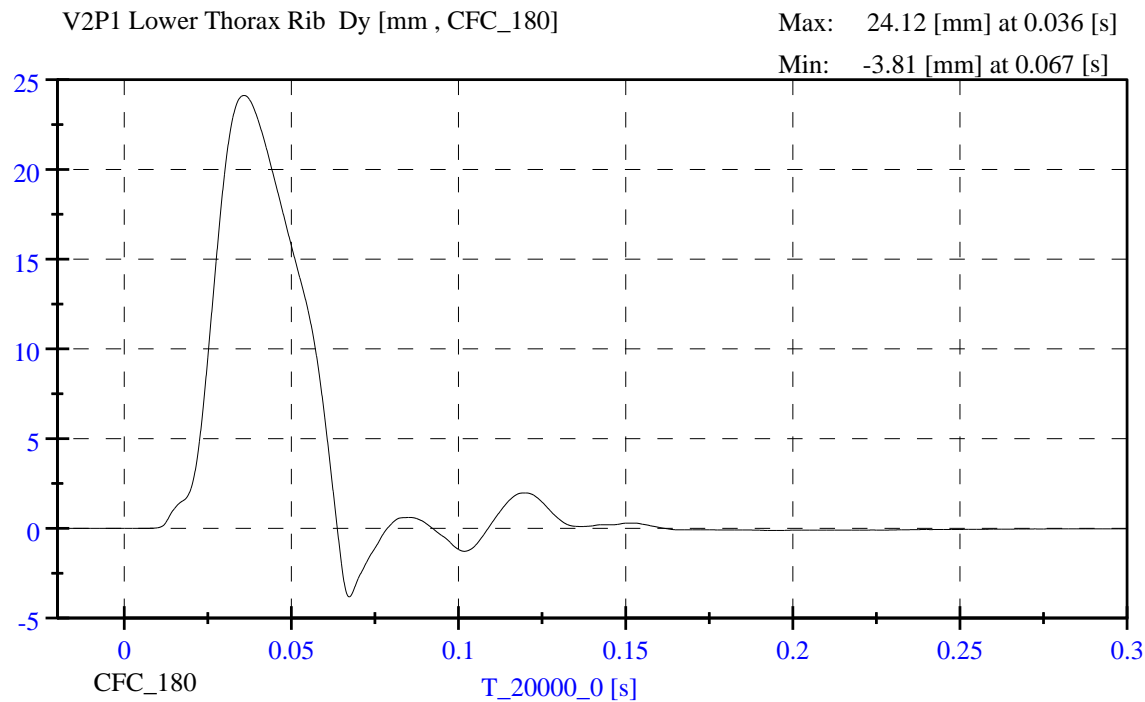
Left MDB Contact Switch

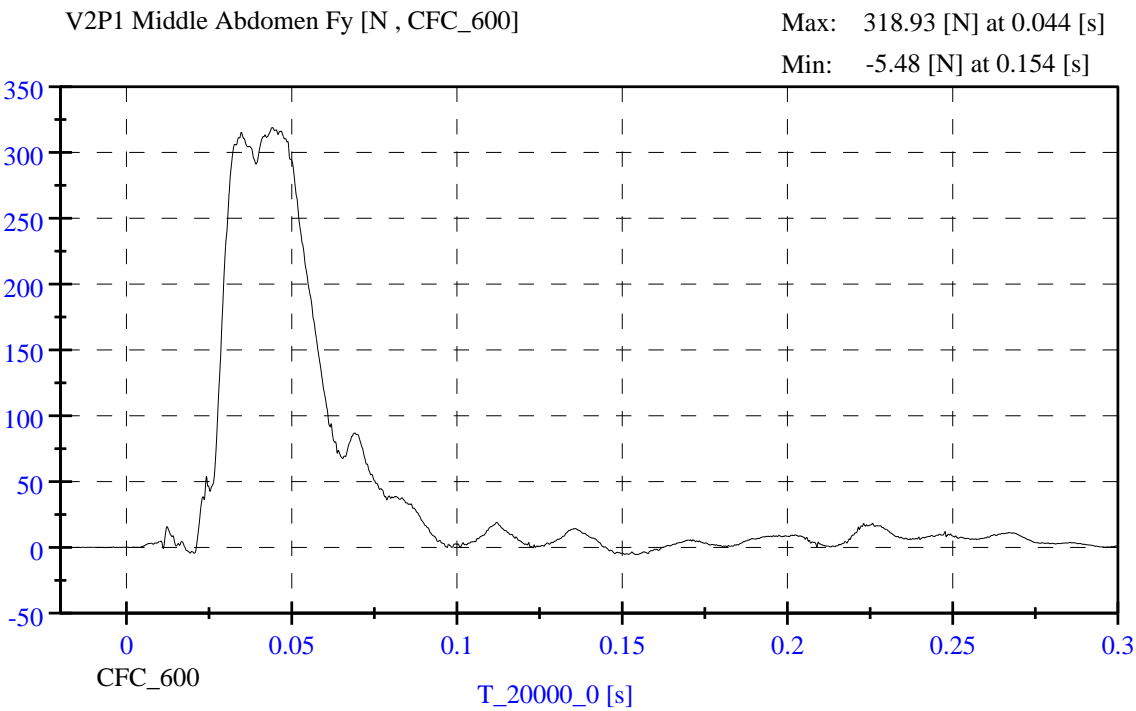
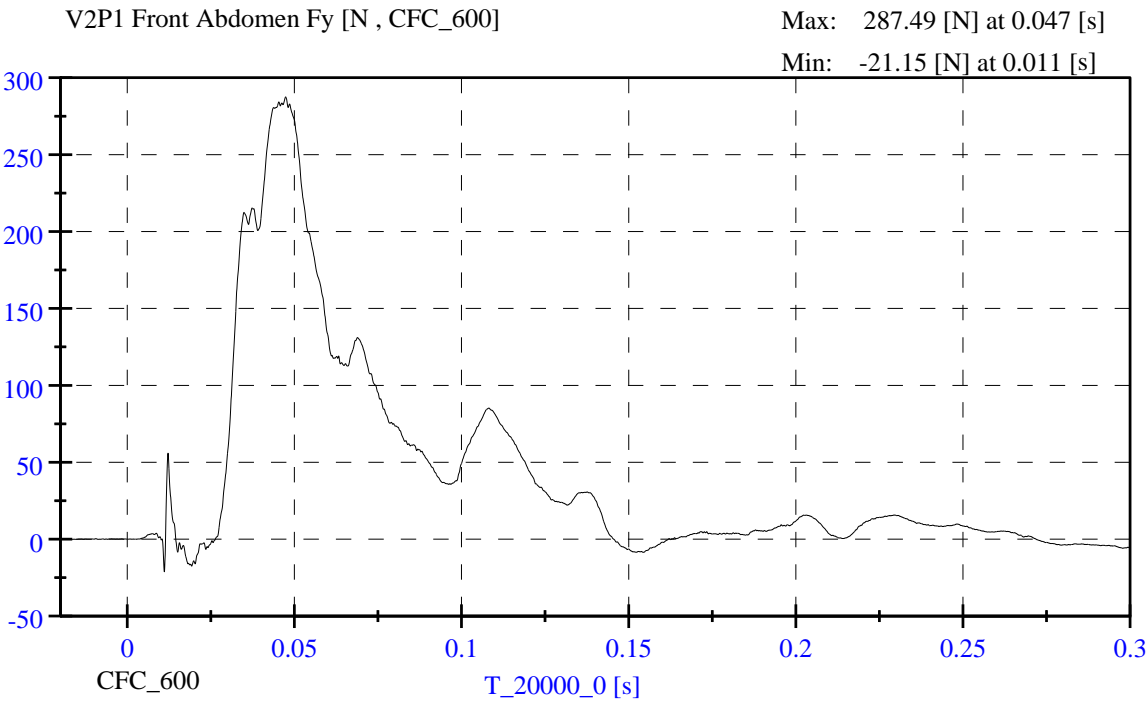
Right MDB Contact Switch

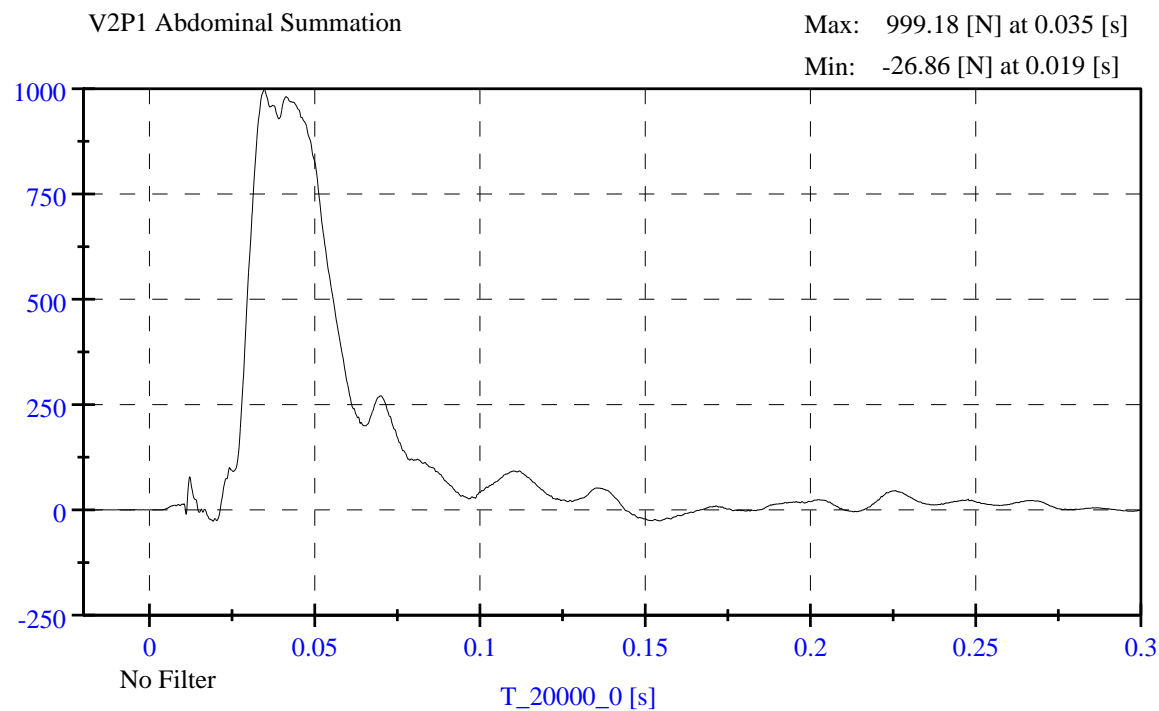
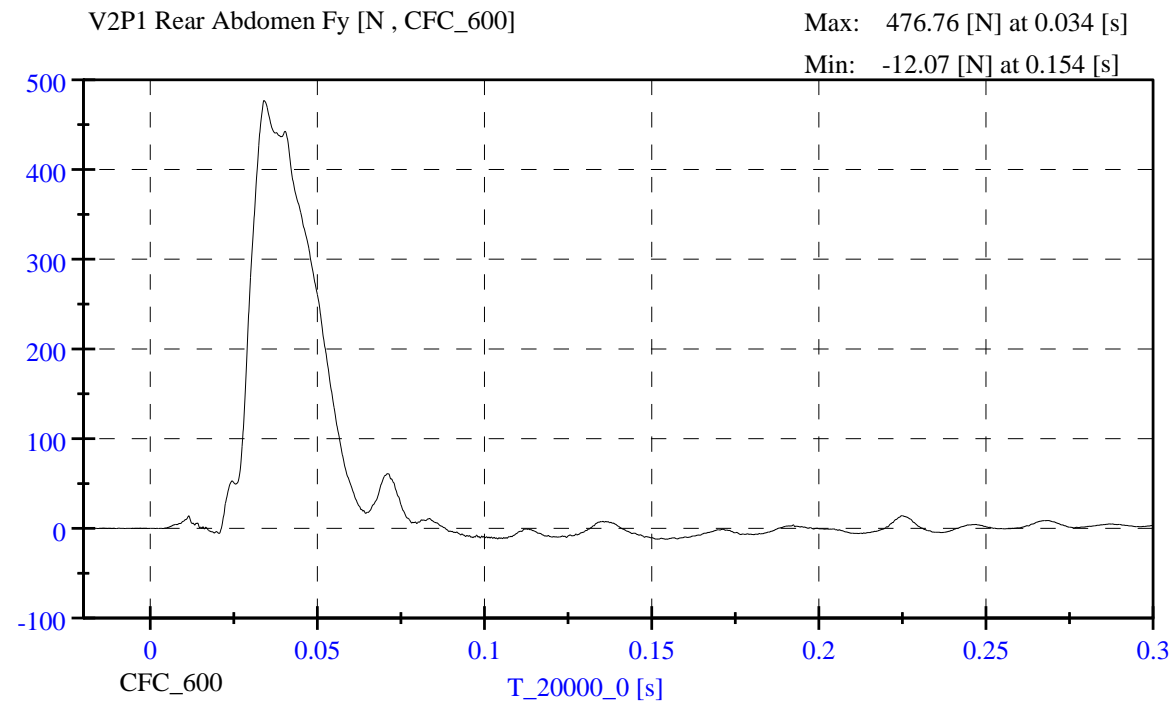


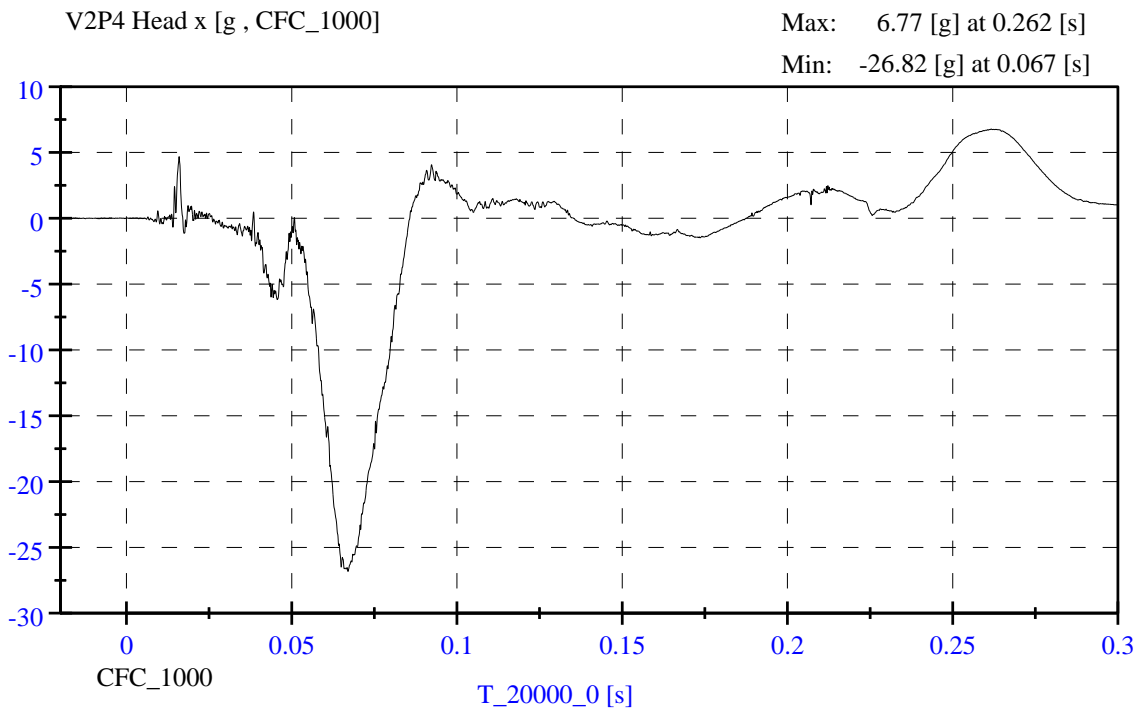
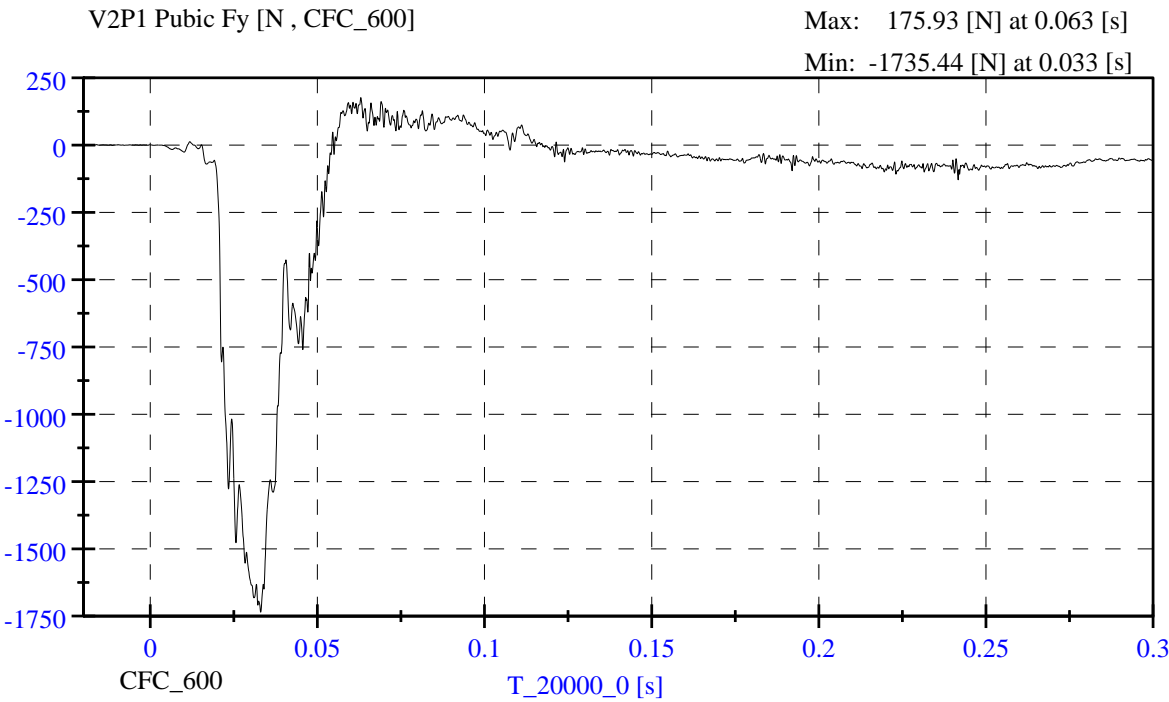


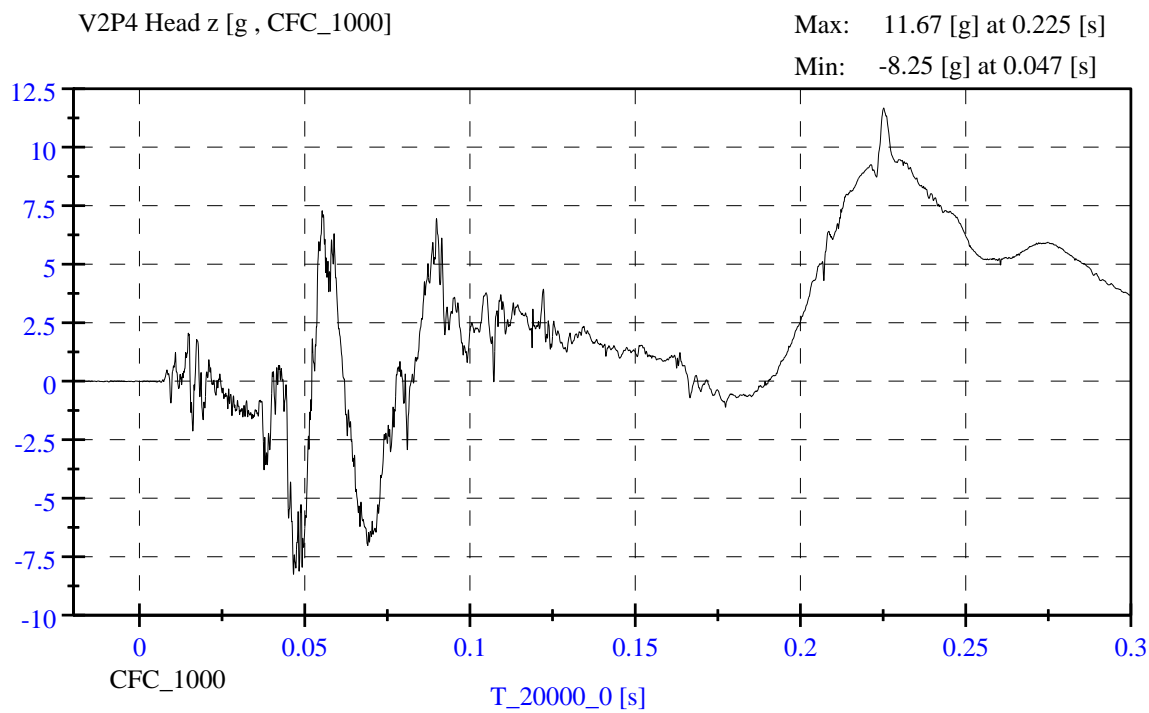
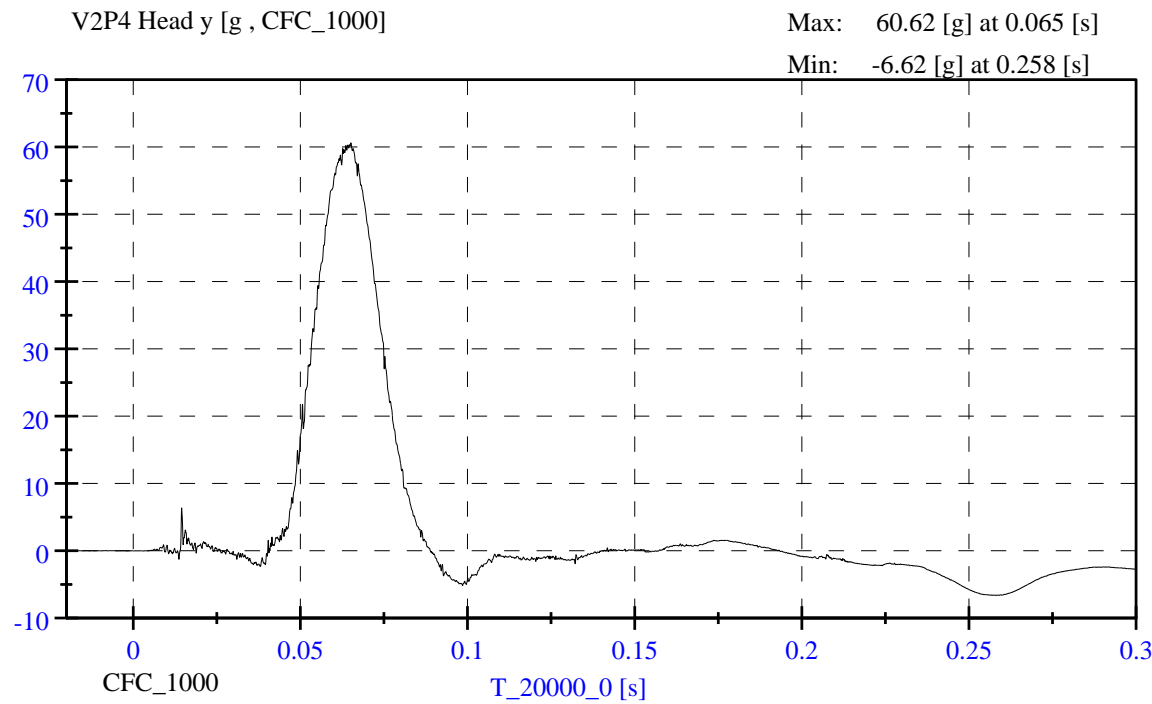


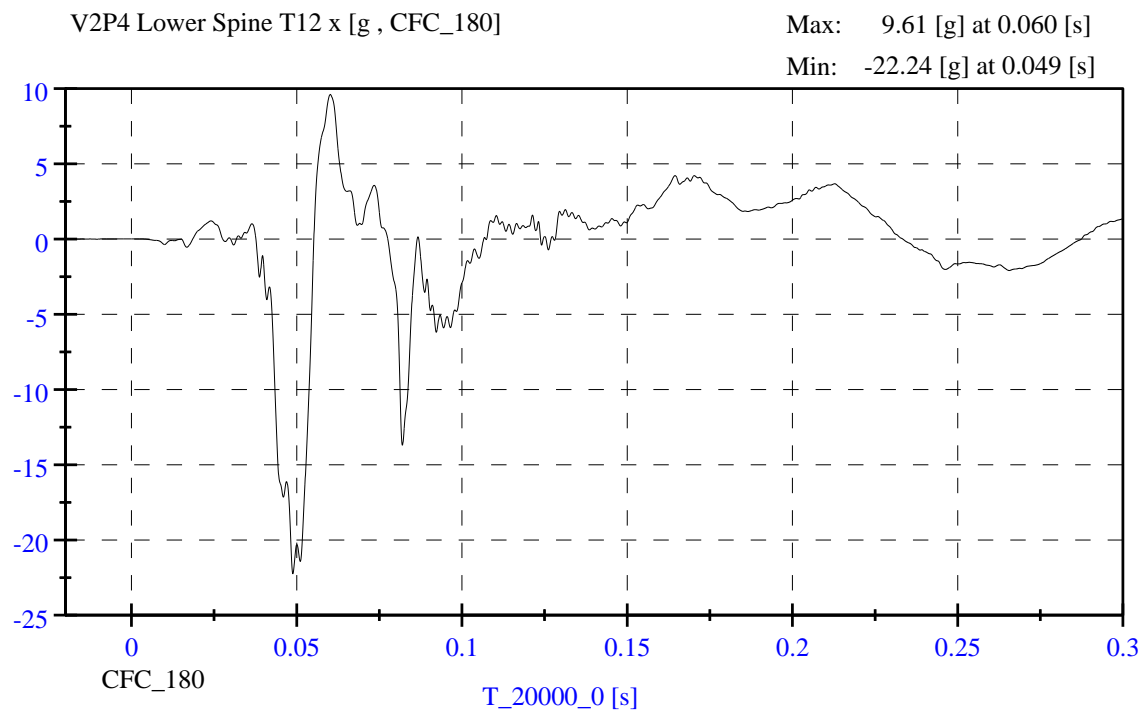
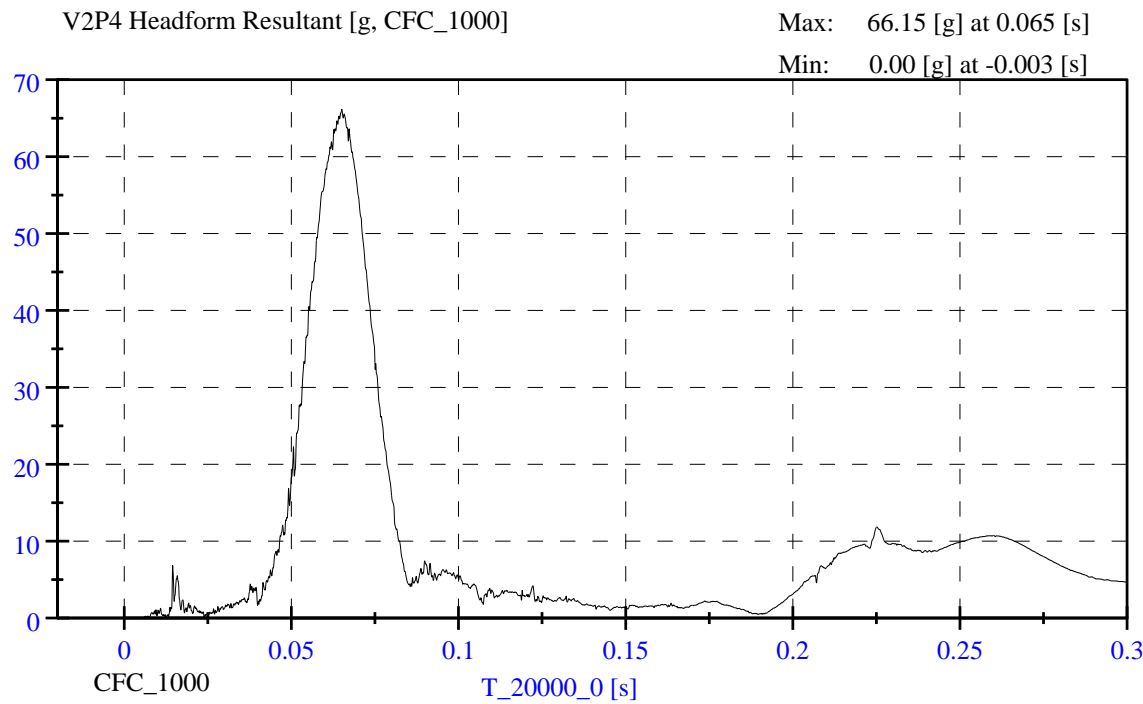


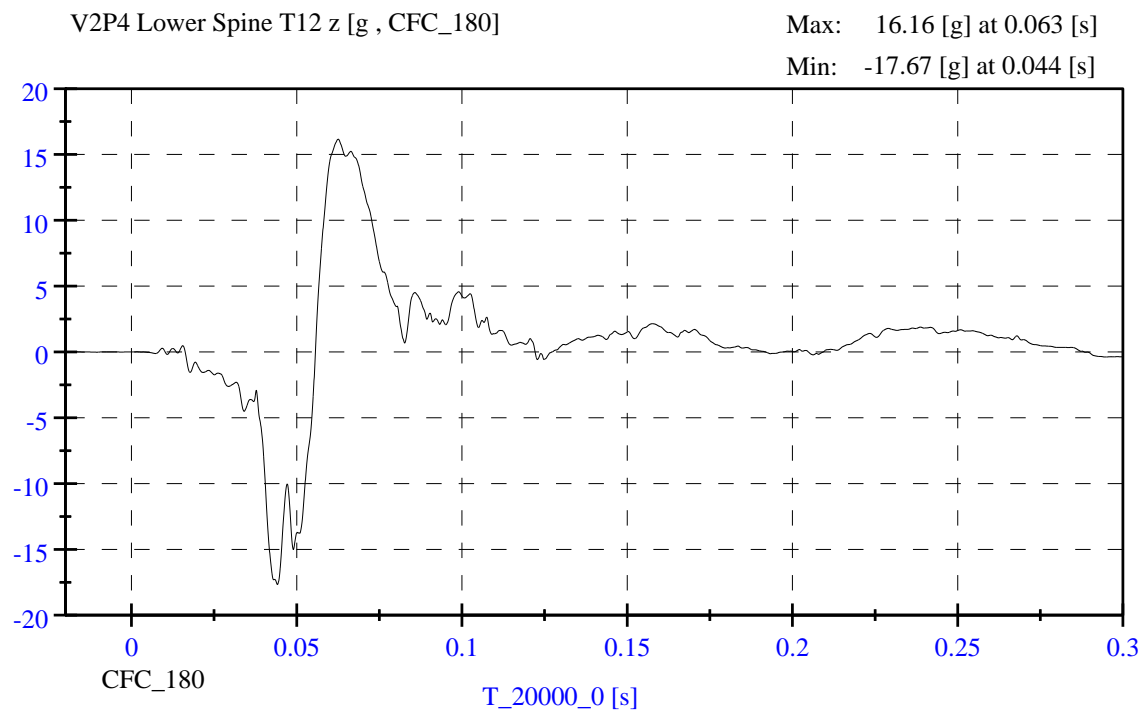
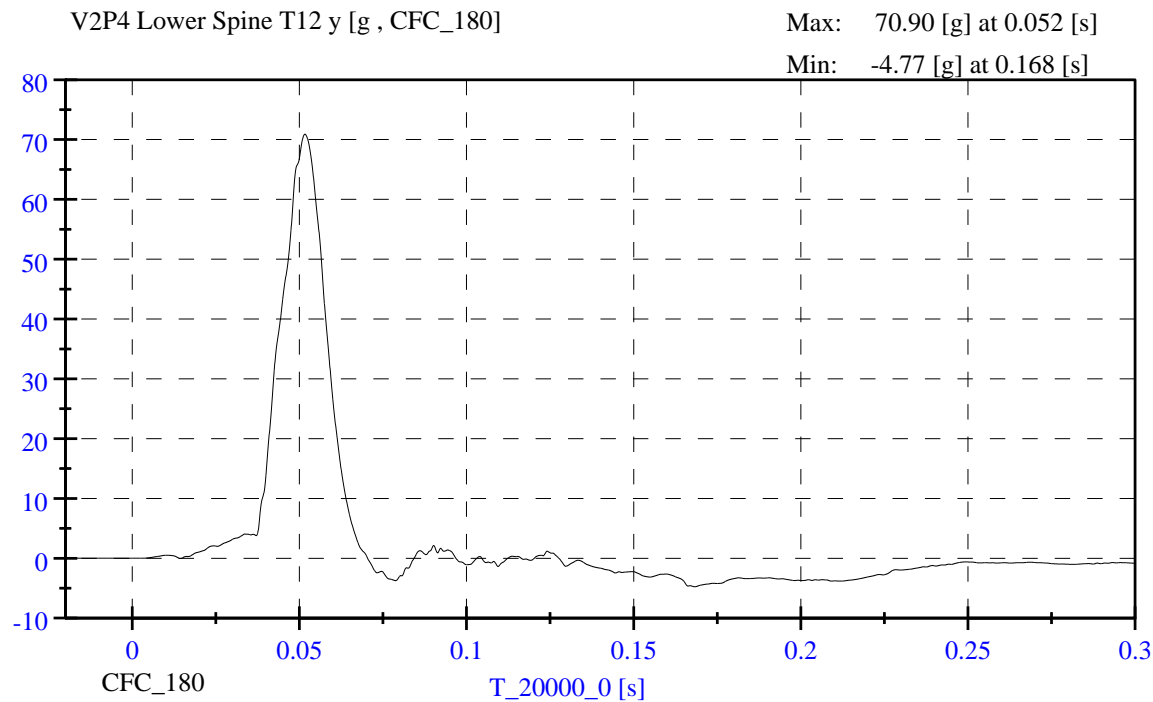


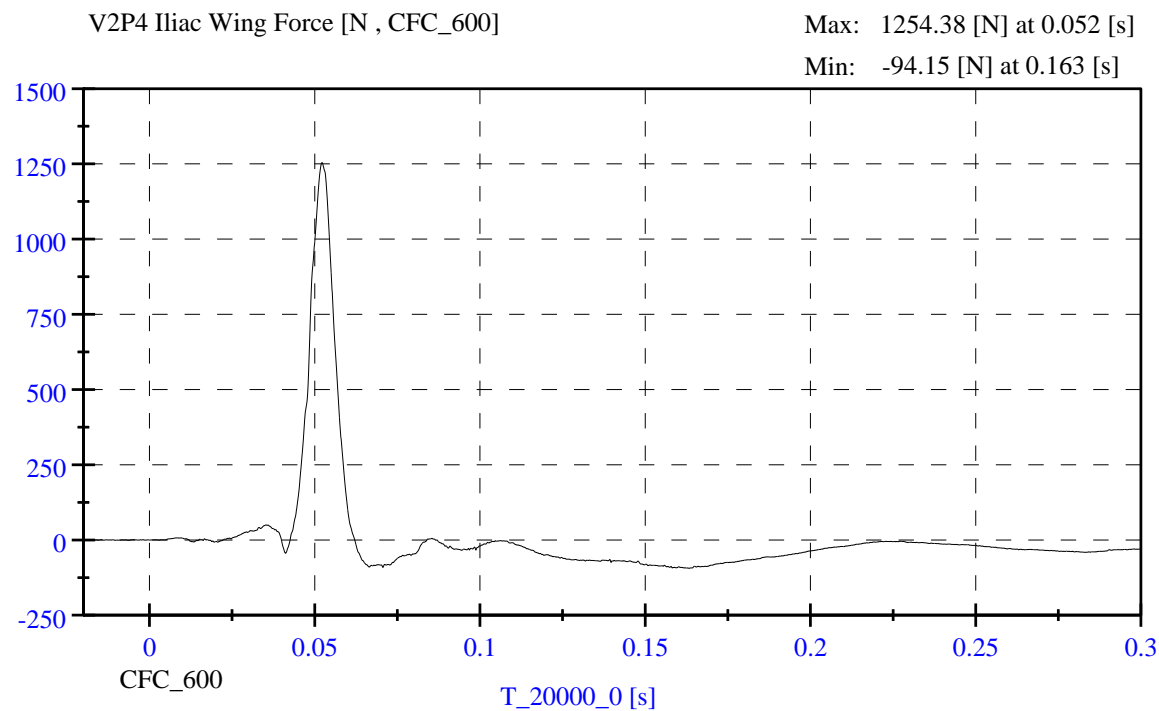
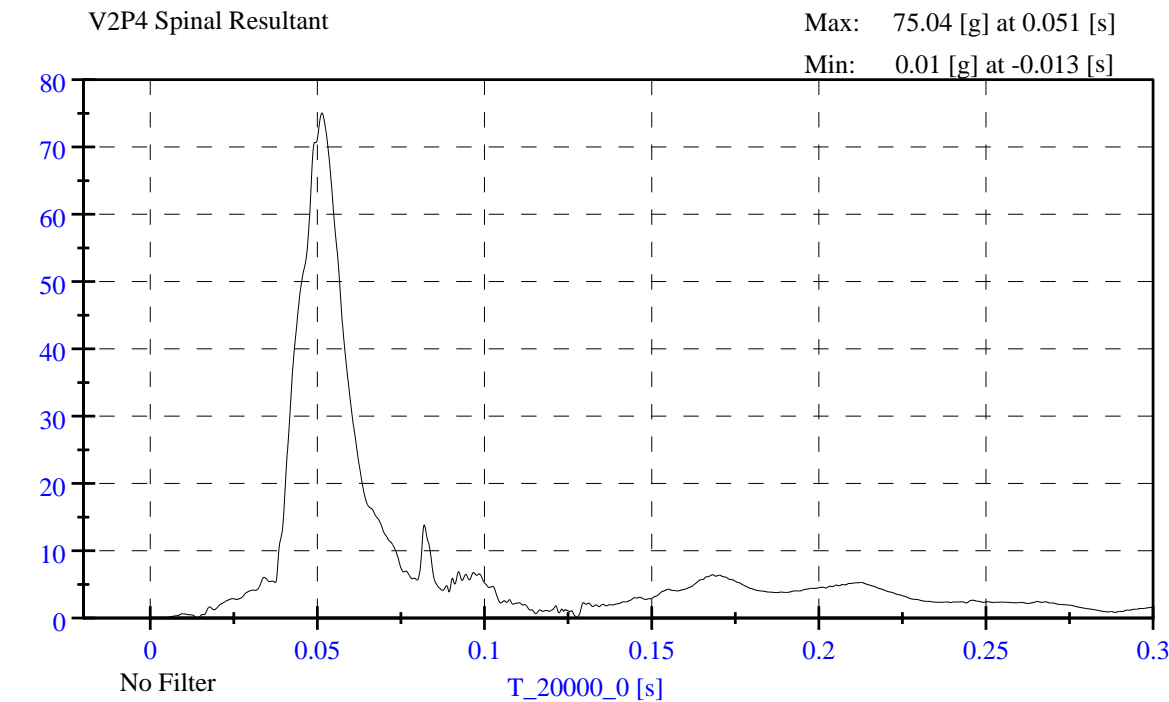


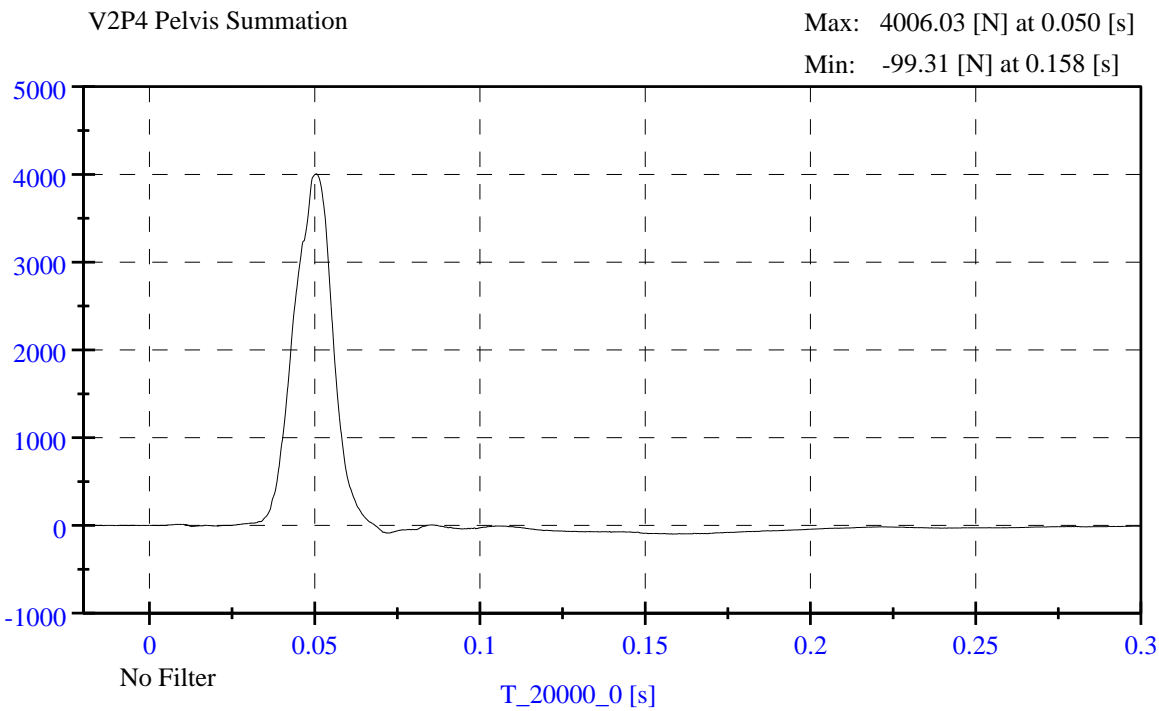
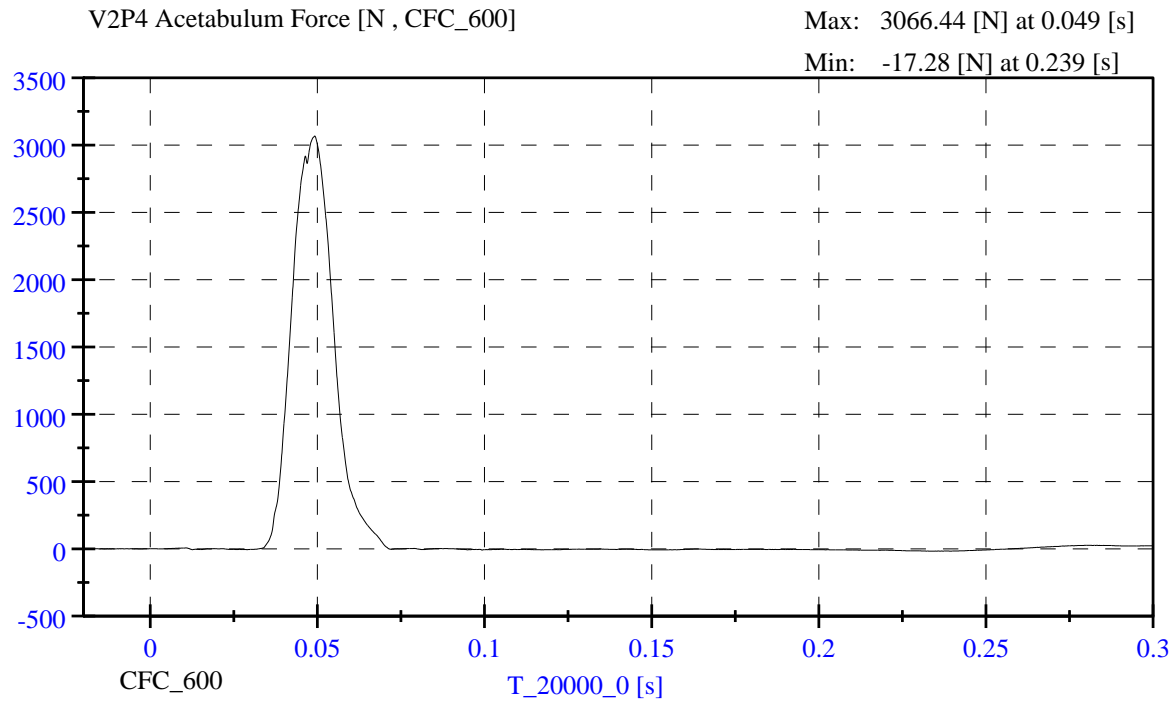












APPENDIX C

DUMMY PERFORMANCE CALIBRATION TEST DATA

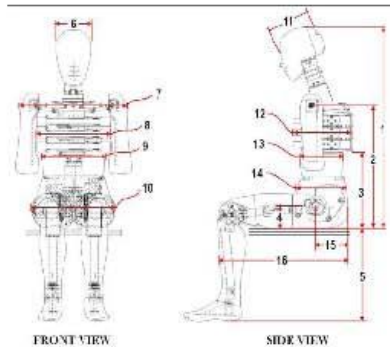
TABLE OF CALIBRATION TEST RESULTS

PRE-TEST

Es-2re No: F034

ES-2re External Measurements

NHTSA S/N F034



Dim. No.	Description	Specification (mm)	Result (mm)	Pass/Fail
1	Sitting Height	900-918	914	Pass
2	Seat to Shoulder Joint	558-572	565	Pass
3	Seat to Lower Face of Thoracic Spine Box	346-356	354	Pass
4	Seat to Hip Joint (center of bolt)	97-103	101	Pass
5	Sole to Seat, Sitting	433-451	445	Pass
6	Head Width	152-158	155	Pass
7	Shoulder/Arm Width	461-479	465	Pass
8	Thorax Width	322-332	324	Pass
9	Abdomen Width	273-287	283	Pass
10	Pelvis Lap Width	359-373	370	Pass
11	Head Depth	196-206	201	Pass
12	Thorax Depth	262-272	267	Pass
13	Abdomen Depth	194-204	199	Pass
14	Pelvis Depth	235-245	237	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150-160	155	Pass
16	Back of Buttocks to Front Knee	597-615	604	Pass

Technician: DS

Date: 10/17/2011



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VERIFICATION REPORT

Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/15/2011
Test Number:	2	Test Time:	5:23:14 PM

Component Part Number	Component Serial Number
455-1007 Head Skin	8468

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.1 deg C P
Humidity	10 -- 70	47 %RH P
Resultant Acceleration	125 -- 155	152 g P
Oscillation	0.0 -- 15.0	12.4 % P
Fore-Aft Acceleration	-15.00 -- 15.00	-6.26 g P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID:

Test Time: **5:23:14 PM**

Test Date: **10/15/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Endevco	7264-2000	P58737	9/29/2011
Endevco	7264-2000	P52022	9/29/2011
Endevco	7264-2000	P52040	9/29/2011

Test ID:

Test Time: **5:23:14 PM**

Test Date: **10/15/2011**

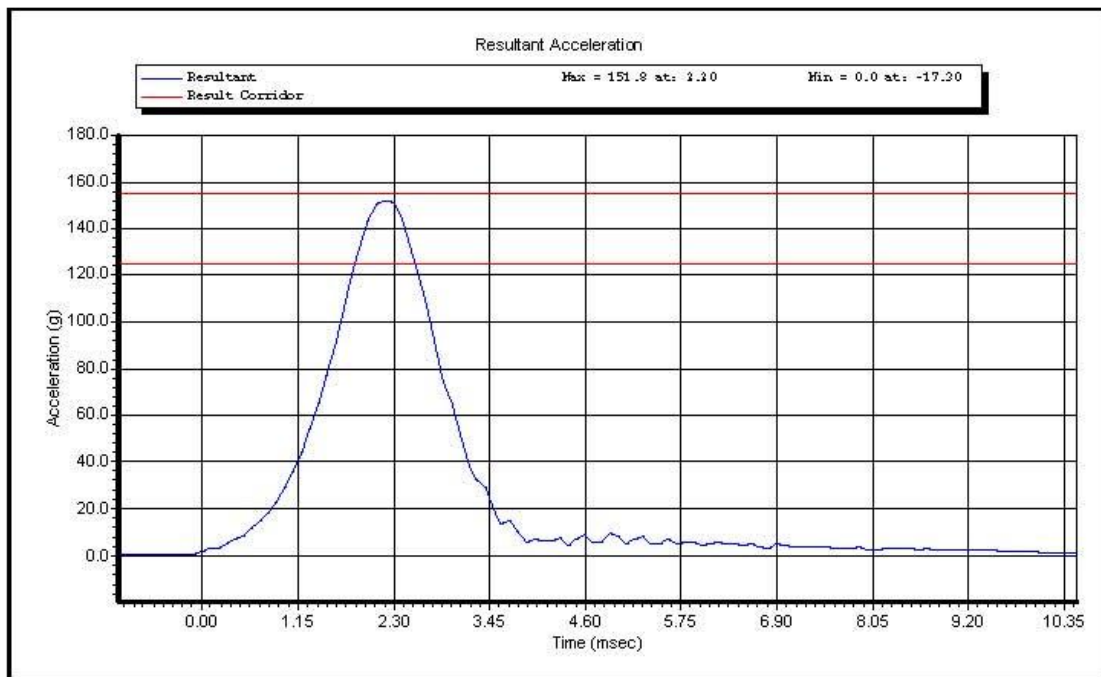


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Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/15/2011
Test Number:	2	Test Time:	5:23:14 PM



Test ID:

Test Time: 5:23:14 PM

Test Date: 10/15/2011

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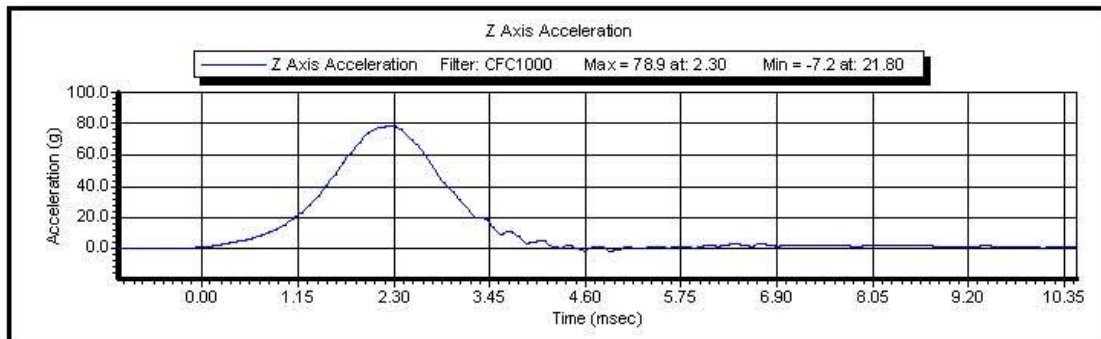
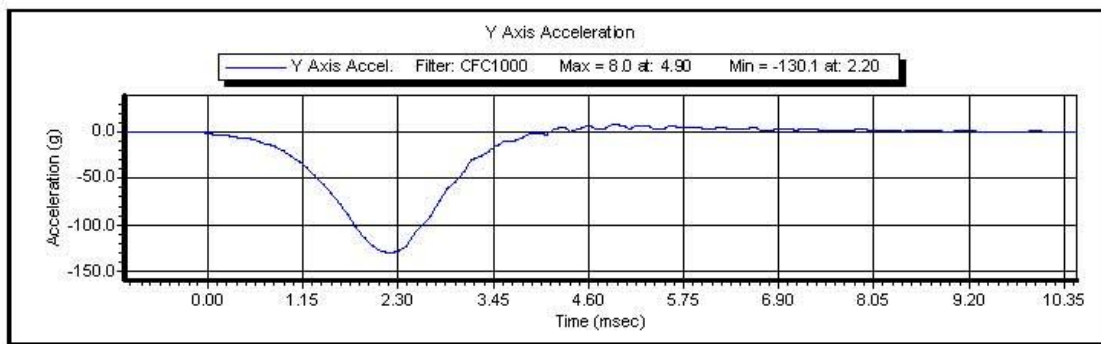
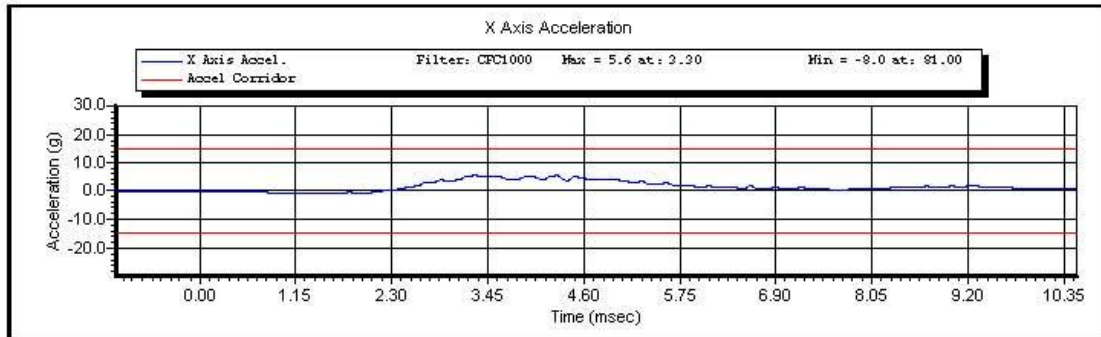
1 of 2



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Test ID:

Test Time: 5:23:14 PM

Test Date: 10/15/2011

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VERIFICATION REPORT

Test Name:	Neck Flexion	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/14/2011
Test Number:	1	Test Time:	5:10:10 PM

Component Part Number	Component Serial Number
455-2002 Neck	07066

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.8 deg C P
Humidity	10 -- 70	53 %RH P
Velocity	3.30 -- 3.50	3.43 m/s P
Maximum Neck Flexion Angle	49.0 -- 59.0	51.7 degrees P
Time At Maximum Neck Flexion	54.0 -- 66.0	57.3 ms P
Decay to Zero Degrees	53.0 -- 88.0	63.5 ms P
Velocity Corridor	--	P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **5:10:10 PM**

Test Date: **10/14/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	C16510	10/3/2011
DentonATD	7000428	094	4/25/2011
DentonATD	7000428	095	4/25/2011
DentonATD	7000428	093	4/25/2011

Test ID:

Test Time: 5:10:10 PM

Test Date: 10/14/2011

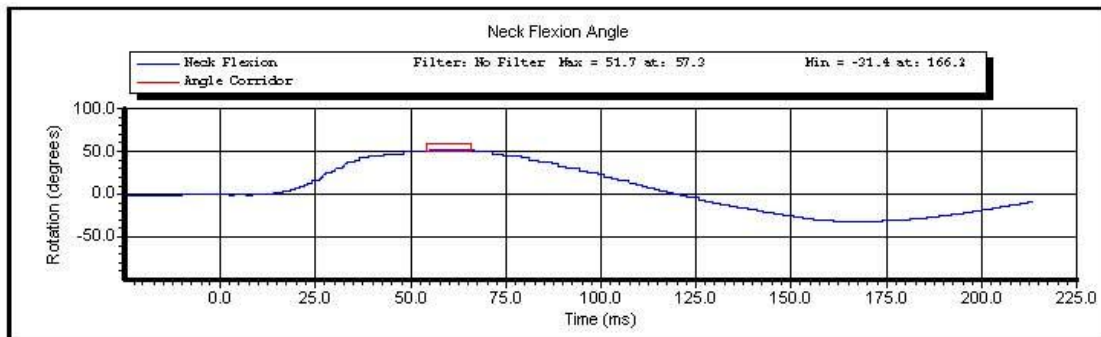
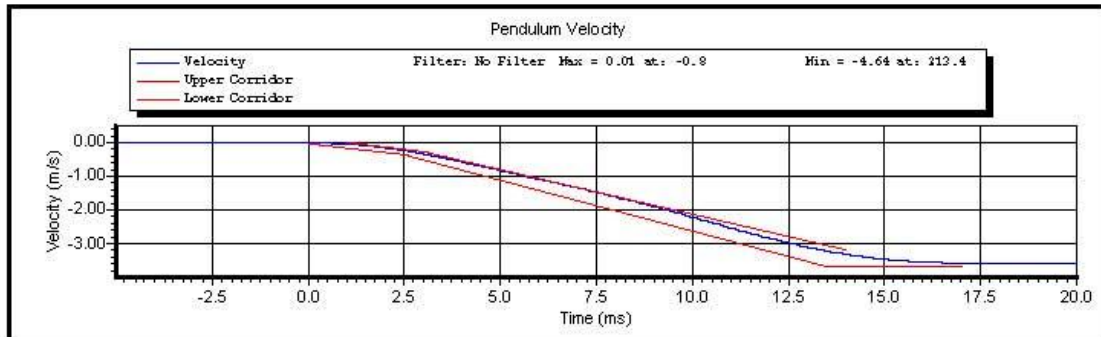


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Test Name:	Neck Flexion	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/14/2011
Test Number:	1	Test Time:	5:10:10 PM



Test ID:

Test Time: 5:10:10 PM

Test Date: 10/14/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

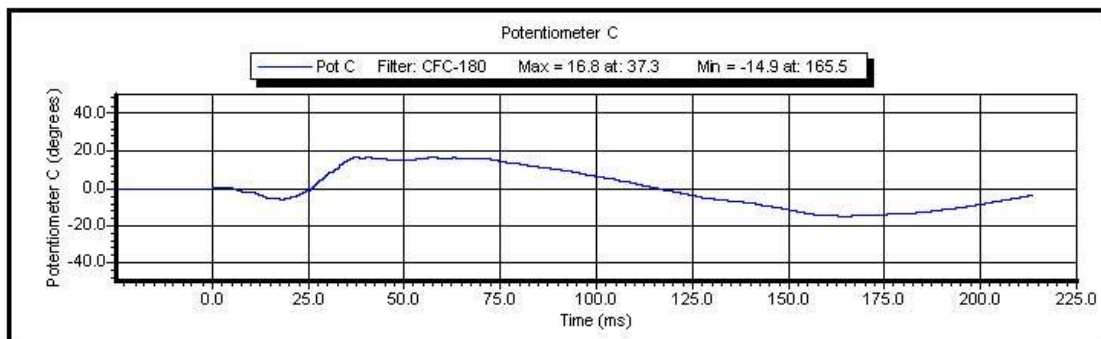
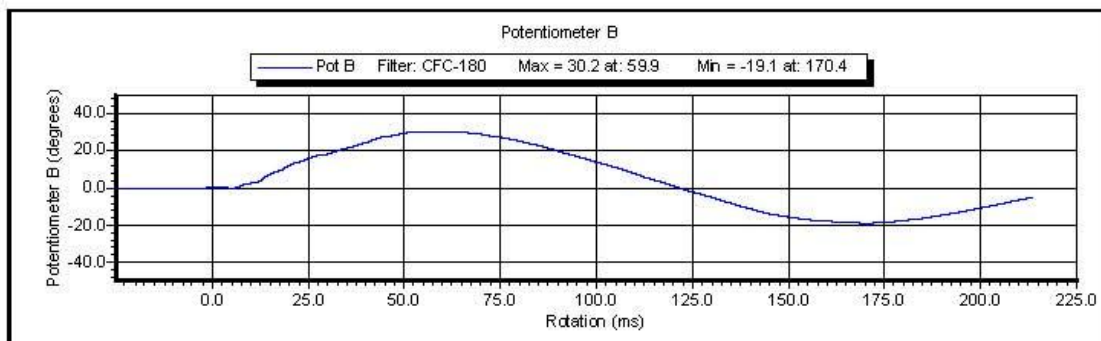
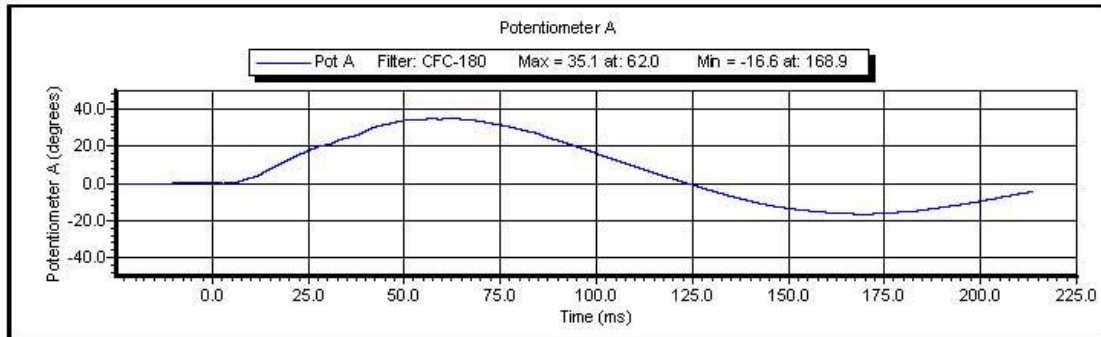
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Test ID:

Test Time: 5:10:10 PM

Test Date: 10/14/2011

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VERIFICATION REPORT

Test Name:	Shoulder Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/15/2011
Test Number:	1	Test Time:	4:00:28 PM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.0 deg C P
Humidity	10.0 -- 70.0	47.0 %RH P
Velocity	4.20 -- 4.40	4.30 m/s P
Pendulum Acceleration	-10.50 -- -7.50	-10.16 g P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID:

Test Time: **4:00:28 PM**

Test Date: **10/15/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011

Test ID:

Test Time: 4:00:28 PM

Test Date: 10/15/2011

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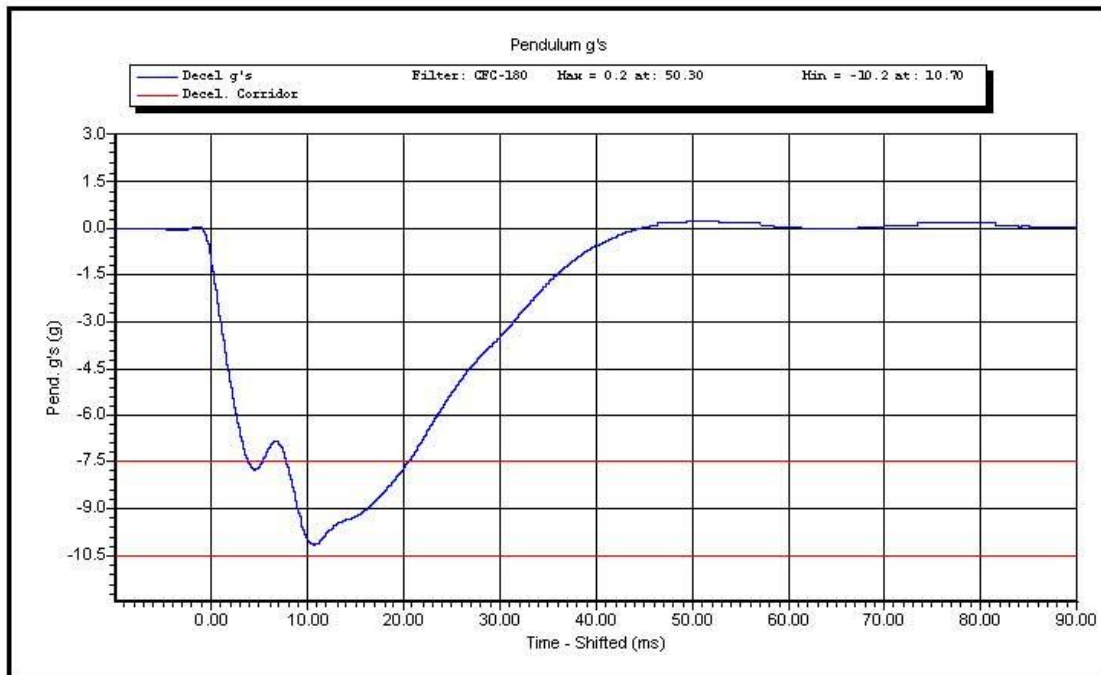


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Test Name:	Shoulder Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/15/2011
Test Number:	1	Test Time:	4:00:28 PM



Test ID:

Test Time: 4:00:28 PM

Test Date: 10/15/2011

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/4/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Upper Rib 4 m/s	Test Date:	10/14/2011
Test Number:	1	Test Time:	7:06:14 PM

Component Part Number	Component Serial Number
455-3100	UPPER

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.9 deg C P
Humidity	10.0 -- 70.0	52.0 %RH P
Velocity	3.90 -- 4.10	3.96 m/s P
Rib Displacement	-51.00 -- -46.00	-48.67 mm P
Drop Height	807.0 -- 823.0	815.0 mm P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID: **Upper Rib 4 m/s**

Test Time: **7:06:14 PM**

Test Date: **10/14/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-183	8/31/2011
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P32222	10/14/2011

Test ID: **Upper Rib 4 m/s**

Test Time: **7:06:14 PM**

Test Date: **10/14/2011**

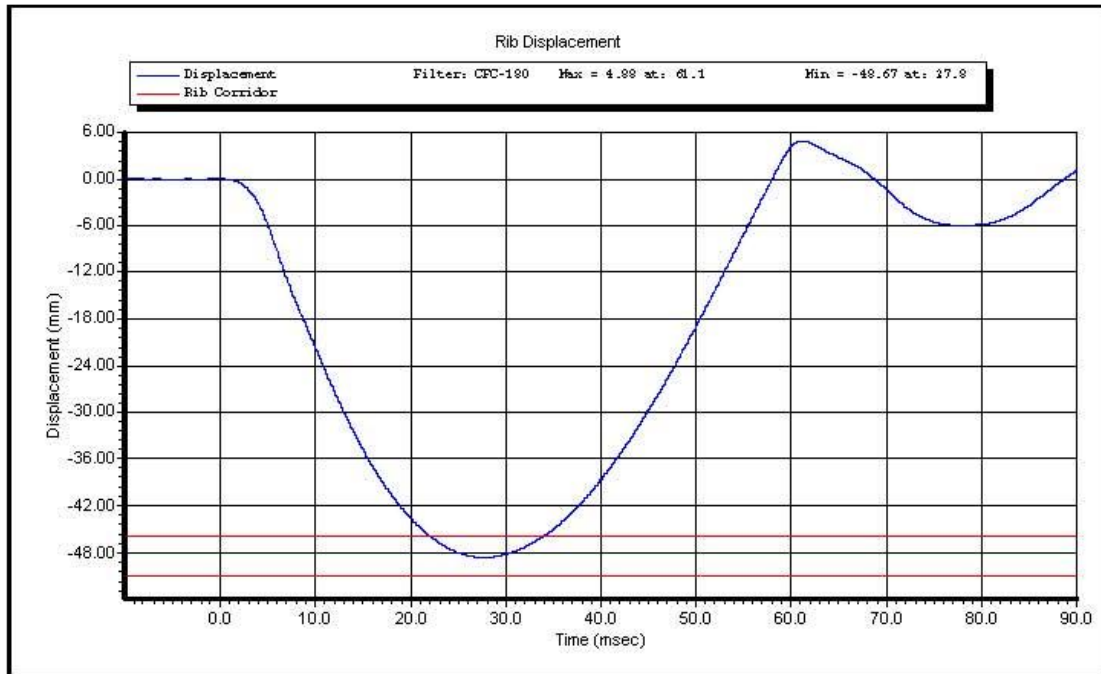


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Upper Rib 4 m/s	Test Date:	10/14/2011
Test Number:	1	Test Time:	7:06:14 PM



Test ID: Upper Rib 4 m/s Test Time: 7:06:14 PM

Test Date: 10/14/2011

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/14/2011
Test Number:	1	Test Time:	7:14:16 PM

Component Part Number	Component Serial Number
455-3100	UPPER

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.9 deg C P
Humidity	10.0 -- 70.0	51.0 %RH P
Velocity	2.90 -- 3.10	2.96 m/s P
Rib Displacement	-40.00 -- -36.00	-37.95 mm P
Drop Height	454 -- 464	459 mm P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID:

Test Time: **7:14:16 PM**

Test Date: **10/14/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-183	8/31/2011
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P32222	10/14/2011

Test ID:

Test Time: **7:14:16 PM**

Test Date: **10/14/2011**

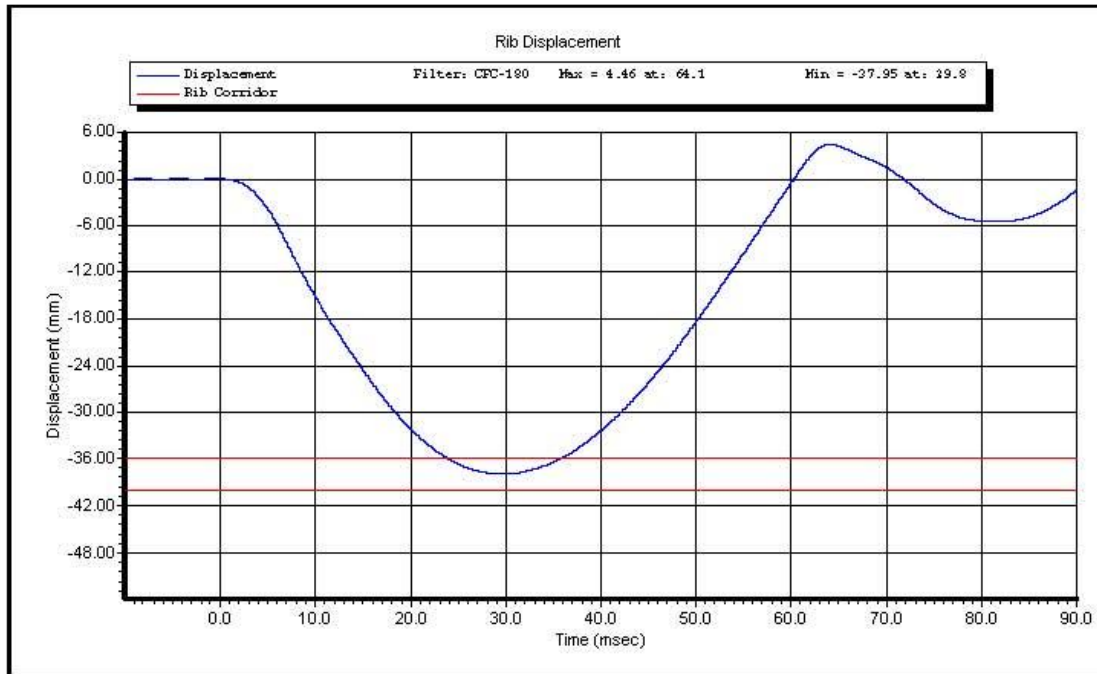


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/14/2011
Test Number:	1	Test Time:	7:14:16 PM



Test ID:

Test Time: 7:14:16 PM

Test Date: 10/14/2011

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Middle Rib 4 m/s	Test Date:	10/14/2011
Test Number:	1	Test Time:	7:34:43 PM

Component Part Number	Component Serial Number
455-3100	MIDDLE

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.9 deg C P
Humidity	10.0 -- 70.0	51.0 %RH P
Velocity	3.90 -- 4.10	3.97 m/s P
Rib Displacement	-51.00 -- -46.00	-48.32 mm P
Drop Height	807.0 -- 823.0	815.0 mm P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID: **Middle Rib 4 m/s**

Test Time: **7:34:43 PM**

Test Date: **10/14/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-184	8/31/2011
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P32222	10/14/2011

Test ID: **Middle Rib 4 m/s**

Test Time: **7:34:43 PM**

Test Date: **10/14/2011**

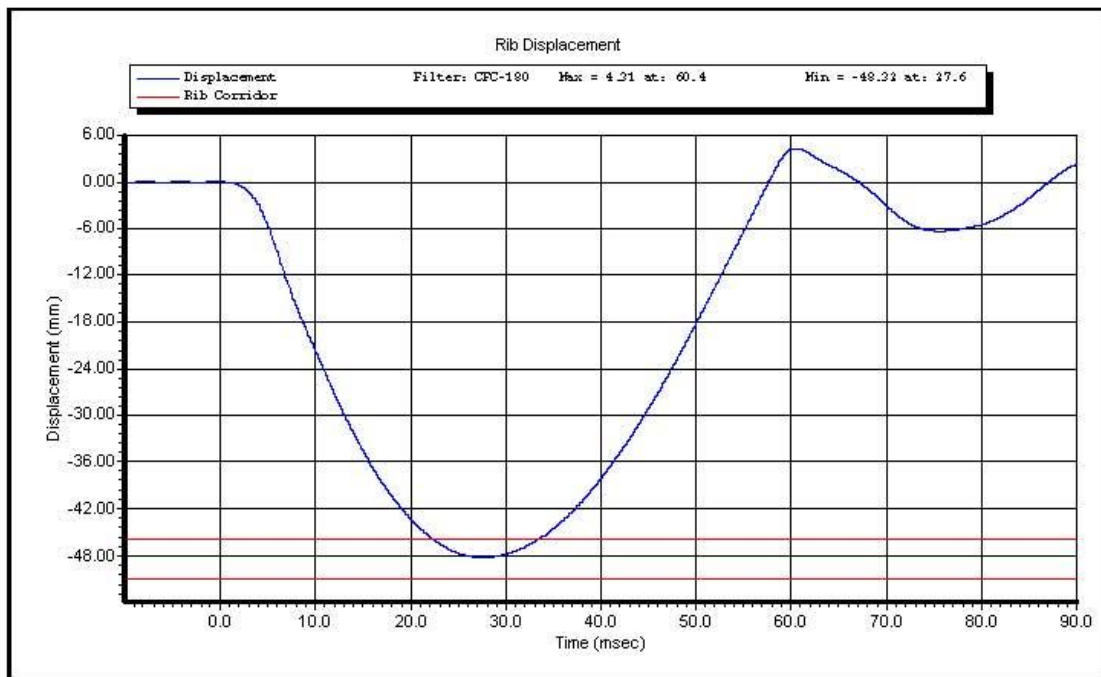


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Middle Rib 4 m/s	Test Date:	10/14/2011
Test Number:	1	Test Time:	7:34:43 PM



Test ID: **Middle Rib 4 m/s** Test Time: **7:34:43 PM**

Test Date: **10/14/2011**

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/4/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Middle Rib 3 m/s	Test Date:	10/14/2011
Test Number:	1	Test Time:	7:42:06 PM

Component Part Number	Component Serial Number
455-3100	MIDDLE

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.9 deg C P
Humidity	10.0 -- 70.0	51.0 %RH P
Velocity	2.90 -- 3.10	2.97 m/s P
Rib Displacement	-40.00 -- -36.00	-37.54 mm P
Drop Height	454 -- 464	459 mm P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID: **Middle Rib 3 m/s**

Test Time: **7:42:06 PM**

Test Date: **10/14/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-184	8/31/2011
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P32222	10/14/2011

Test ID: **Middle Rib 3 m/s**

Test Time: **7:42:06 PM**

Test Date: **10/14/2011**

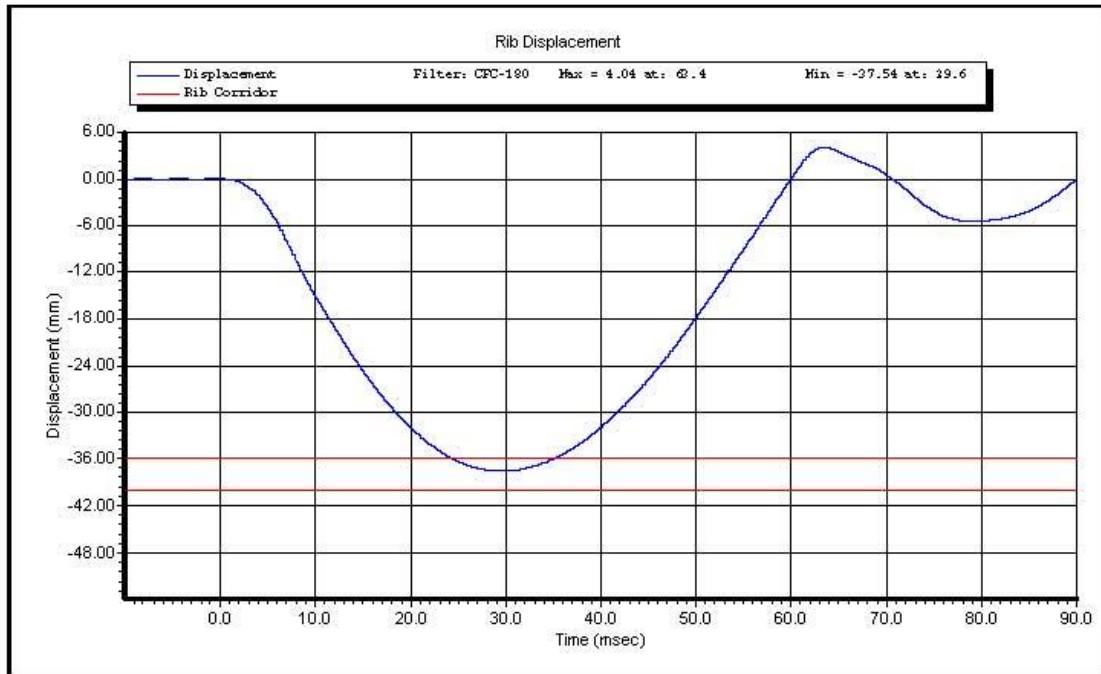


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Middle Rib 3 m/s	Test Date:	10/14/2011
Test Number:	1	Test Time:	7:42:06 PM



Test ID: **Middle Rib 3 m/s** Test Time: **7:42:06 PM**

Test Date: **10/14/2011**

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Lower Rib 4 m/s	Test Date:	10/14/2011
Test Number:	1	Test Time:	7:22:01 PM

Component Part Number	Component Serial Number
455-3100	LOWER

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.9 deg C P
Humidity	10.0 -- 70.0	51.0 %RH P
Velocity	3.90 -- 4.10	3.95 m/s P
Rib Displacement	-51.00 -- -46.00	-48.35 mm P
Drop Height	807.0 -- 823.0	815.0 mm P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID: **Lower Rib 4 m/s**

Test Time: **7:22:01 PM**

Test Date: **10/14/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-182	8/31/2011
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P32222	10/14/2011

Test ID: **Lower Rib 4 m/s**

Test Time: **7:22:01 PM**

Test Date: **10/14/2011**

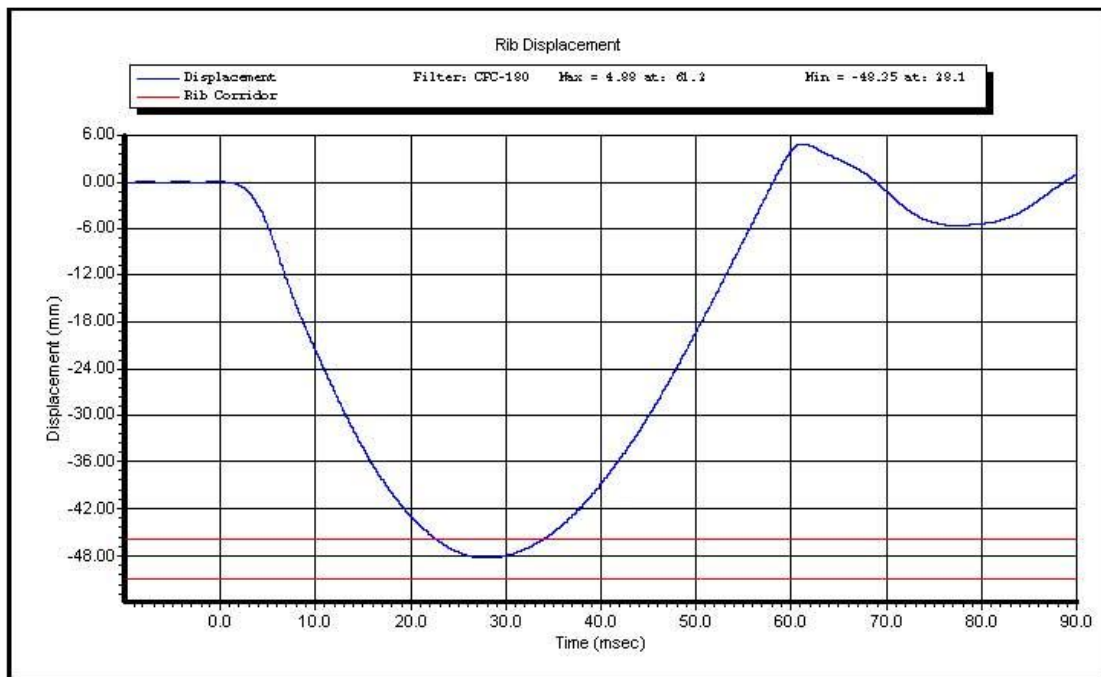


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Lower Rib 4 m/s	Test Date:	10/14/2011
Test Number:	1	Test Time:	7:22:01 PM



Test ID: Lower Rib 4 m/s Test Time: 7:22:01 PM

Test Date: 10/14/2011

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Lower Rib 3 m/s	Test Date:	10/14/2011
Test Number:	1	Test Time:	7:28:44 PM

Component Part Number	Component Serial Number
455-3100	LOWER

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.9 deg C P
Humidity	10.0 -- 70.0	51.0 %RH P
Velocity	2.90 -- 3.10	2.96 m/s P
Rib Displacement	-40.00 -- -36.00	-37.48 mm P
Drop Height	454 -- 464	459 mm P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID: **Lower Rib 3 m/s**

Test Time: **7:28:44 PM**

Test Date: **10/14/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-182	8/31/2011
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P32222	10/14/2011

Test ID: **Lower Rib 3 m/s**

Test Time: **7:28:44 PM**

Test Date: **10/14/2011**

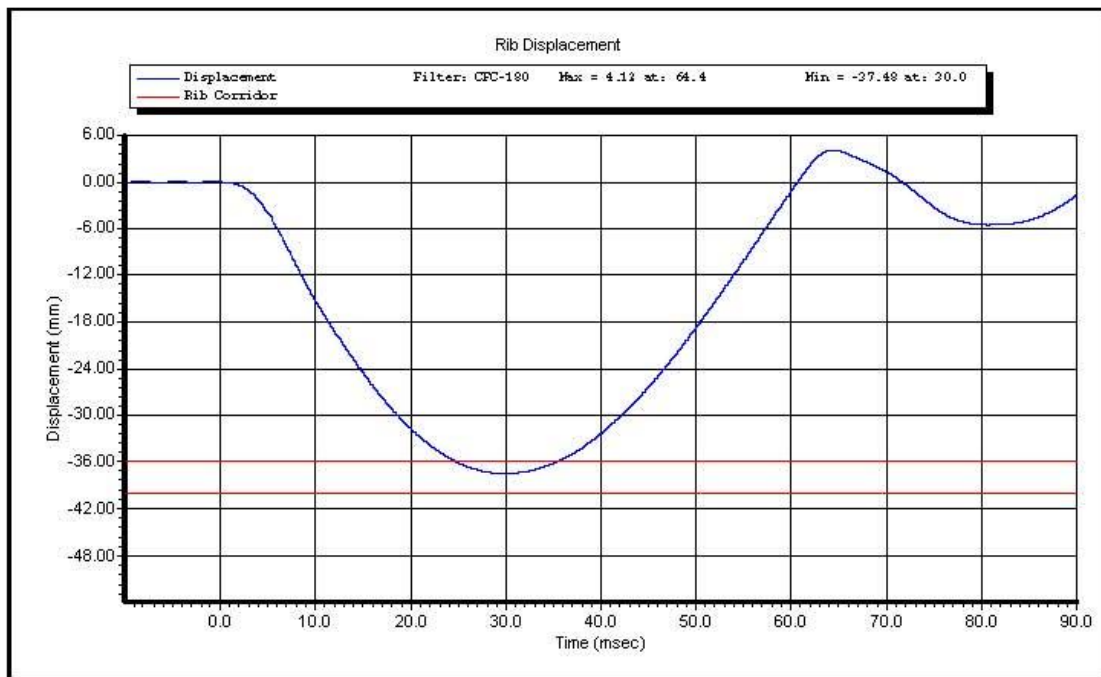


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Lower Rib 3 m/s	Test Date:	10/14/2011
Test Number:	1	Test Time:	7:28:44 PM



Test ID: **Lower Rib 3 m/s** Test Time: **7:28:44 PM**

Test Date: **10/14/2011**

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VERIFICATION REPORT

Test Name:	Abdominal Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/15/2011
Test Number:	1	Test Time:	5:03:08 PM

Component Part Number	Component Serial Number
455-4001 Abdomen Insert	0791

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.1 deg C P
Humidity	10 -- 70	47 %RH P
Velocity	3.90 -- 4.10	4.00 m/s P
Peak Abdominal Force	-2.70 -- -2.20	-2.44 kN P
Time At Peak Abdominal Force	10.0 -- 12.3	10.8 ms P
Maximum Pendulum Force	-4.80 -- -4.00	-4.22 kN P
Time at Peak Pendulum Force	10.6 -- 13.0	11.6 ms P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **5:03:08 PM**

Test Date: **10/15/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
Denton	2631	LC-1512	6/3/2011
Denton	2631	LC-1526	6/3/2011
Denton	2631	LC-1516	6/3/2011

Test ID:

Test Time: 5:03:08 PM

Test Date: 10/15/2011

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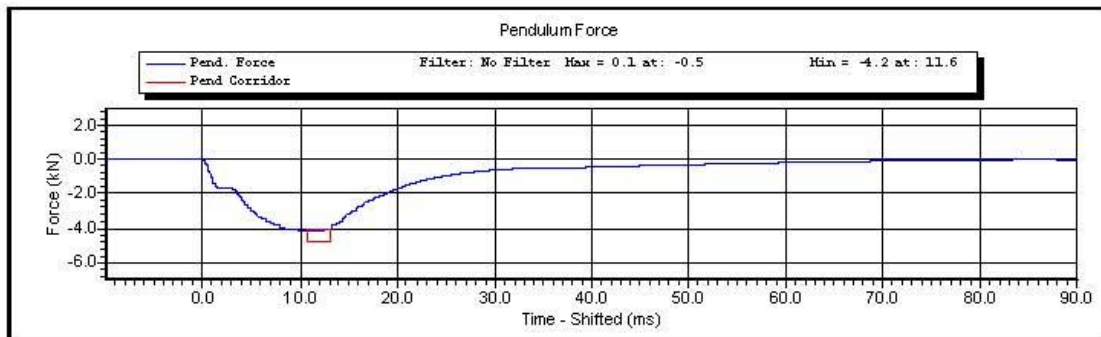
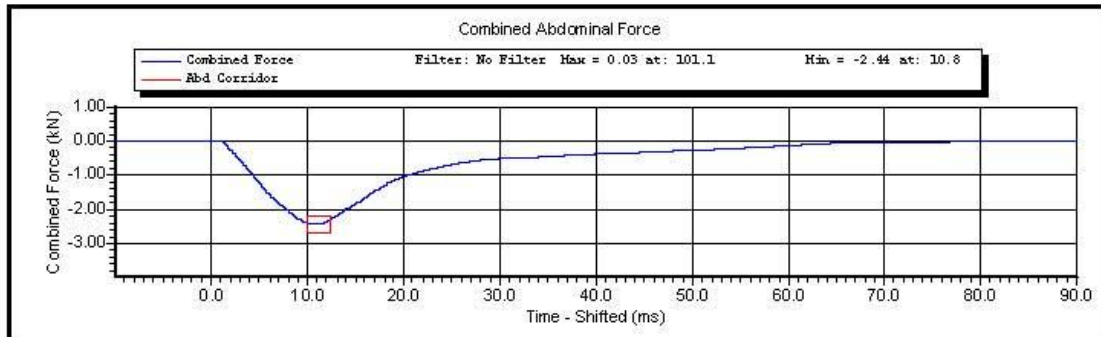


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Test Name:	Abdominal Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/15/2011
Test Number:	1	Test Time:	5:03:08 PM



Test ID:

Test Time: 5:03:08 PM

Test Date: 10/15/2011

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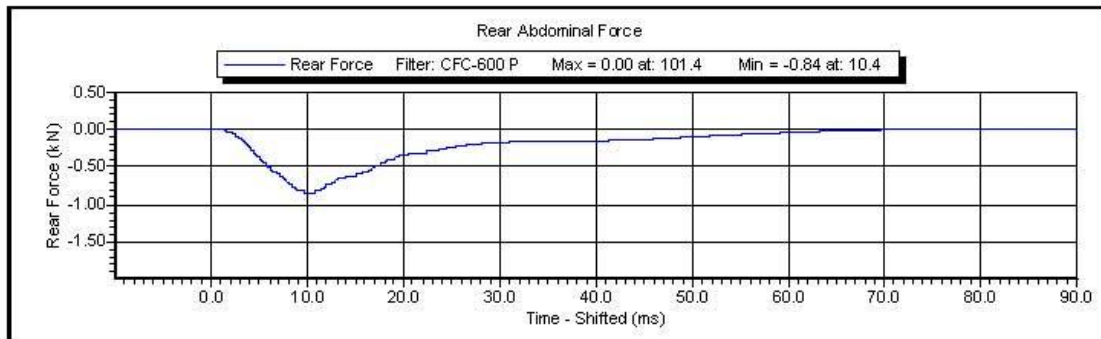
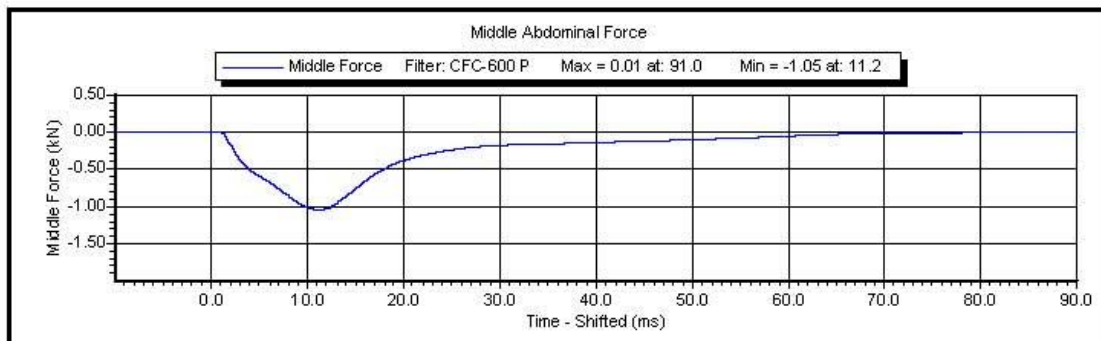
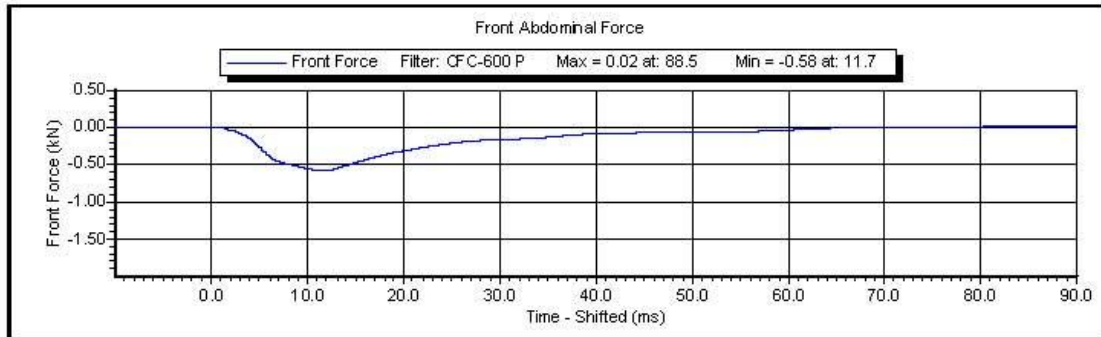
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Test ID:

Test Time: 5:03:08 PM

Test Date: 10/15/2011

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VERIFICATION REPORT

Test Name:	Lumbar Spine	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/14/2011
Test Number:	1	Test Time:	6:11:16 PM

Component Part Number	Component Serial Number
175-5501 Lumbar Spine	15050329A

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.8 deg C P
Humidity	10 -- 70	53 %RH P
Velocity	5.95 -- 6.15	6.14 m/s P
Maximum Headform Flexion Angle	45.0 -- 55.0	46.9 degrees P
Time at Maximum Headform Flexion Angle	39.0 -- 53.0	43.5 ms P
Decay to Zero Degrees	37.0 -- 57.0	39.4 ms P
Velocity Corridor	--	P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **6:11:16 PM**

Test Date: **10/14/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	C16510	10/3/2011
DentonATD	7000428	094	4/25/2011
DentonATD	7000428	095	4/25/2011
DentonATD	7000428	093	4/25/2011

Test ID:

Test Time: **6:11:16 PM**

Test Date: **10/14/2011**

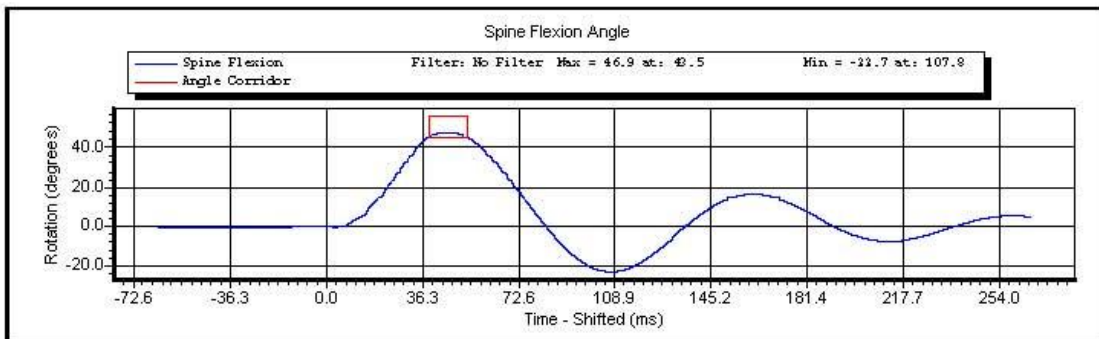
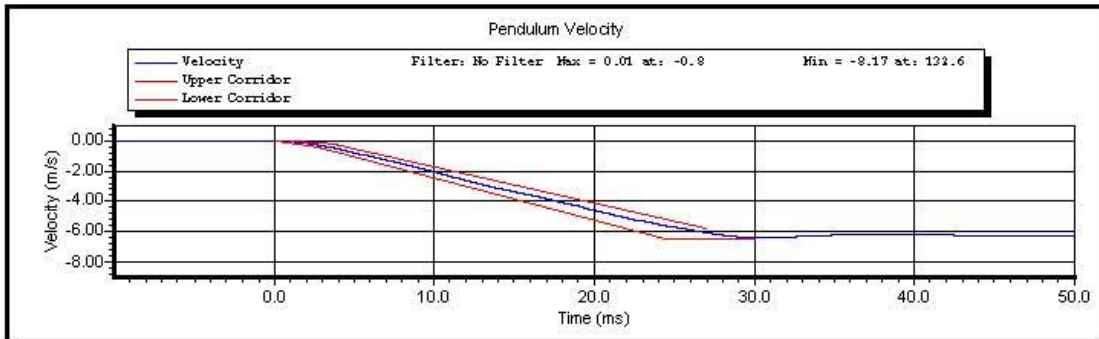


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Test Name:	Lumbar Spine	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/14/2011
Test Number:	1	Test Time:	6:11:16 PM



Test ID:

Test Time: **6:11:16 PM**

Test Date: **10/14/2011**

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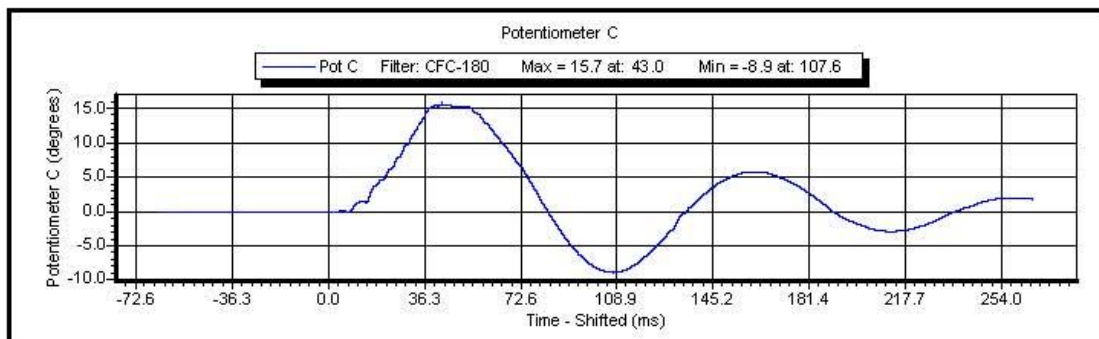
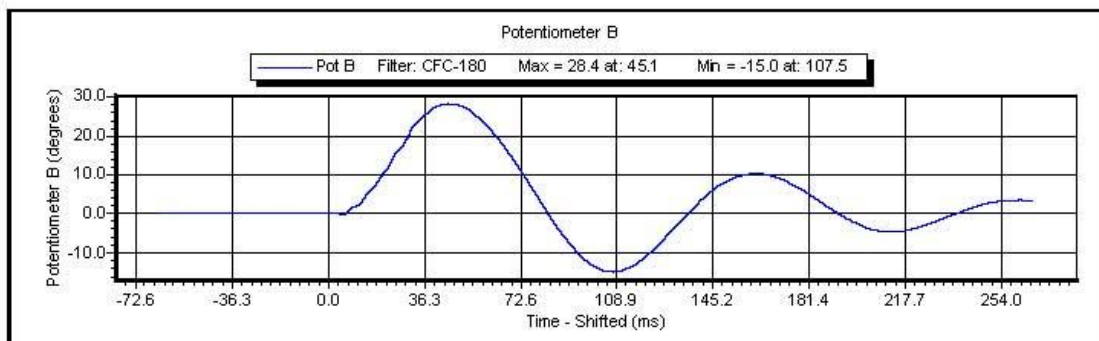
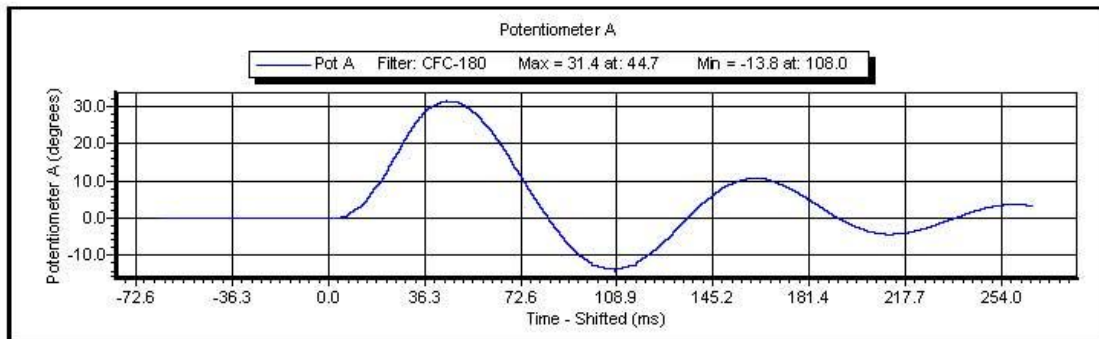
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Test Time: 6:11:16 PM

Test Date: 10/14/2011

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VERIFICATION REPORT

Test Name:	Thorax Impact	Revision:	8/15/2008
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/15/2011
Test Number:	1	Test Time:	4:29:58 PM

Component Part Number	Component Serial Number
Upper Rib - 175-4002	UPPER
Middle Rib - 175-4002	MIDDLE
Lower Rib - 175-4002	LOWER

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.1 deg C P
Humidity	10.0 -- 70.0	49.0 %RH P
Velocity	5.40 -- 5.60	5.51 m/s P
Upper Rib Displacement	34.0 -- 41.0	37.4 mm P
Middle Rib Displacement	37.0 -- 45.0	41.3 mm P
Lower Rib Displacement	37.0 -- 44.0	41.3 mm P
Impactor Force	5100 -- 6200	5765 N P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **4:29:58 PM**

Test Date: **10/15/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
Honeywell	MLT 38000	DS-183	8/31/2011
Honeywell	MLT 38000	DS-184	8/31/2011
Honeywell	MLT 38000	DS-182	8/31/2011

Test ID:

Test Time: 4:29:58 PM

Test Date: 10/15/2011

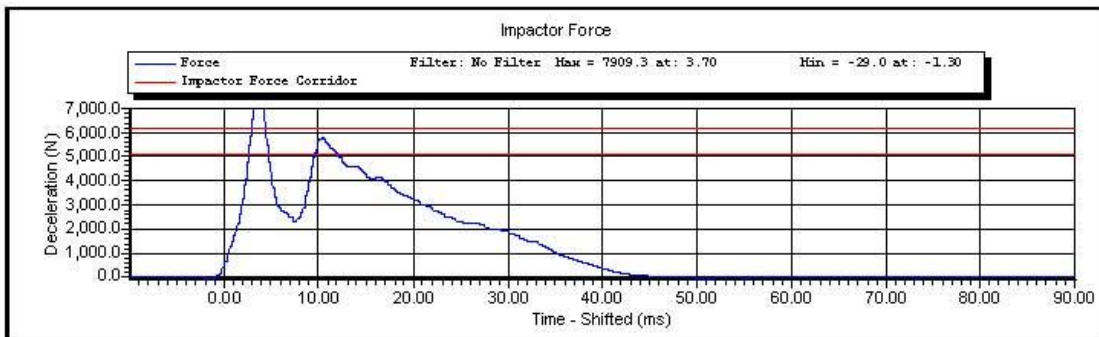
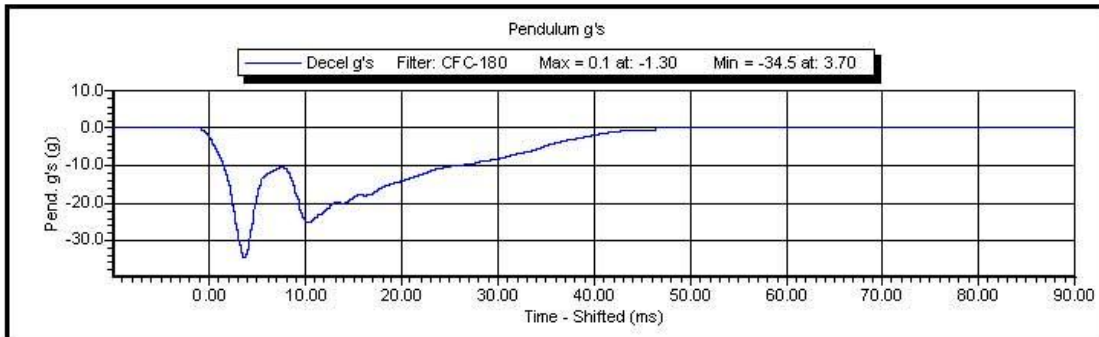


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Test Name:	Thorax Impact	Revision:	8/15/2008
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/15/2011
Test Number:	1	Test Time:	4:29:58 PM



Test ID:

Test Time: 4:29:58 PM

Test Date: 10/15/2011

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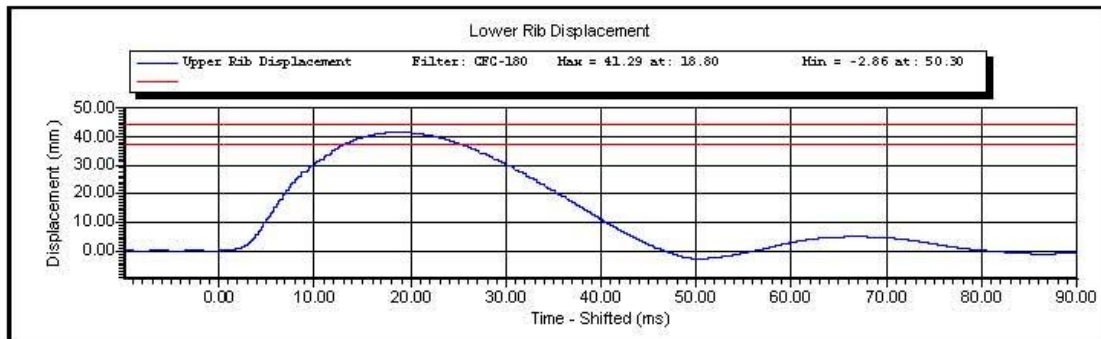
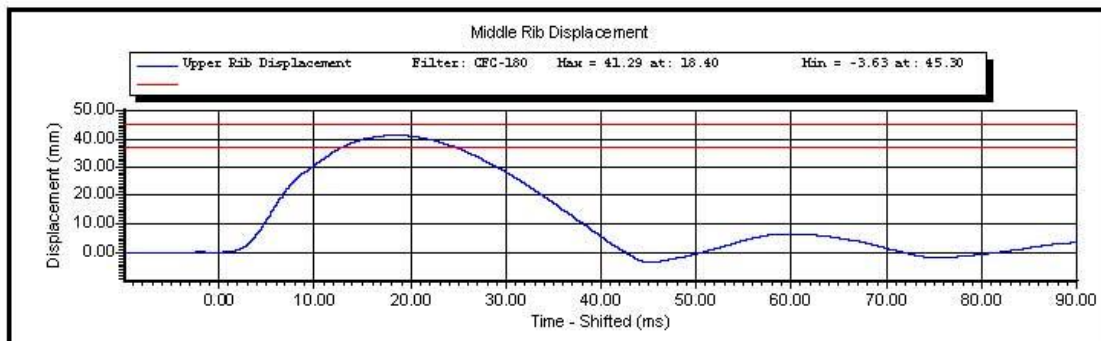
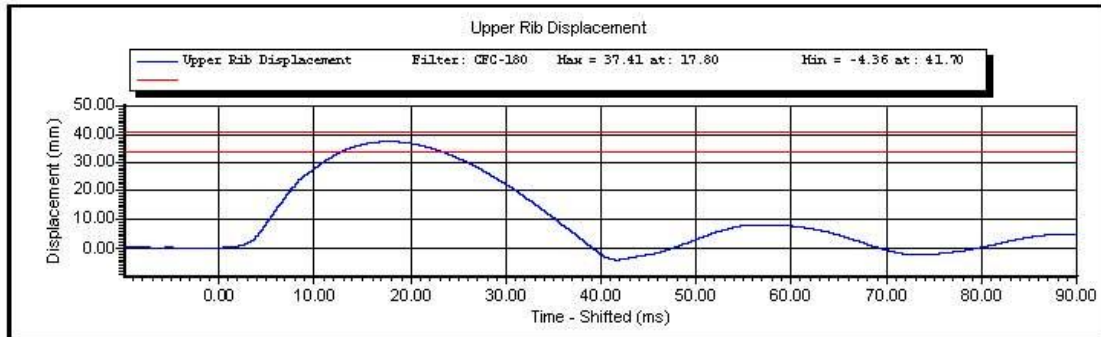
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Test ID:

Test Time: 4:29:58 PM

Test Date: 10/15/2011

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VERIFICATION REPORT

Test Name:	Pelvis Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/14/2011
Test Number:	1	Test Time:	8:28:29 PM

Component Part Number	Component Serial Number
-----------------------	-------------------------

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.8 deg C P
Humidity	10 -- 70	50 %RH P
Velocity	4.20 -- 4.40	4.34 m/s P
Peak Pendulum Force	-5.40 -- -4.70	-5.02 kN P
Time at Peak Pendulum Force	11.80 -- 16.10	14.05 ms P
Peak Pubic Symphysis Force	-1.59 -- -1.23	-1.39 kN P
Time at Peak Pubic Symphysis Force	12.20 -- 17.00	14.85 ms P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **8:28:29 PM**

Test Date: **10/14/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
Denton	3096	LC-465Fy	8/31/2011

Test ID:

Test Time: **8:28:29 PM**

Test Date: **10/14/2011**

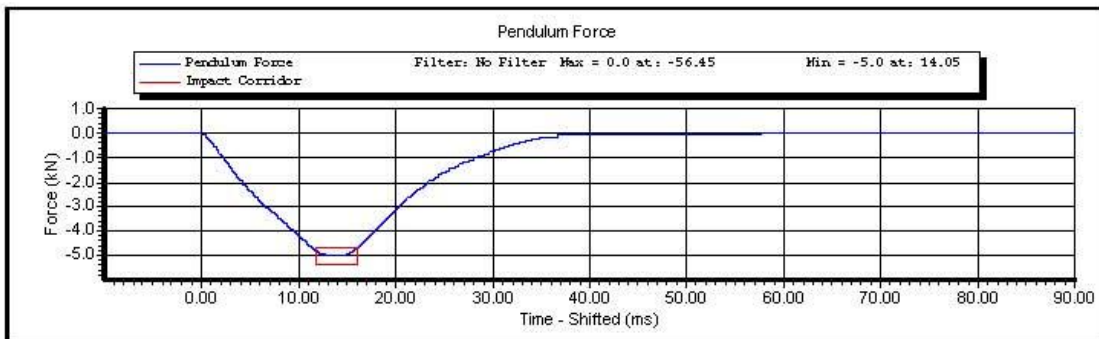
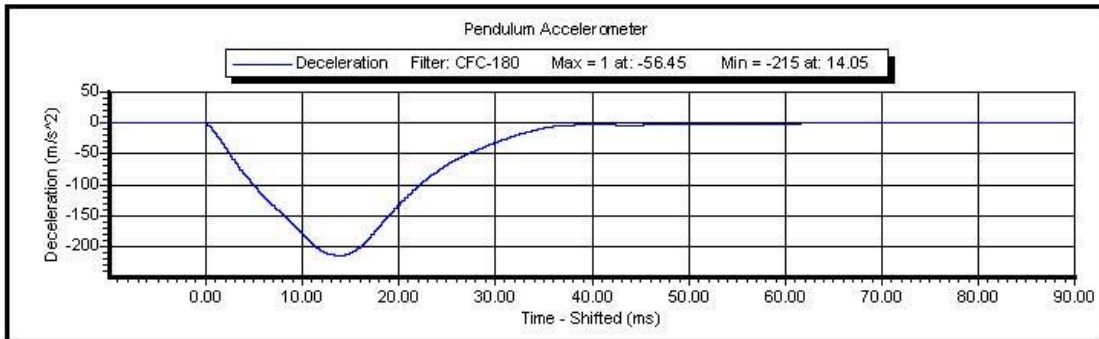


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Test Name:	Pelvis Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/14/2011
Test Number:	1	Test Time:	8:28:29 PM



Test ID:

Test Time: **8:28:29 PM**

Test Date: **10/14/2011**

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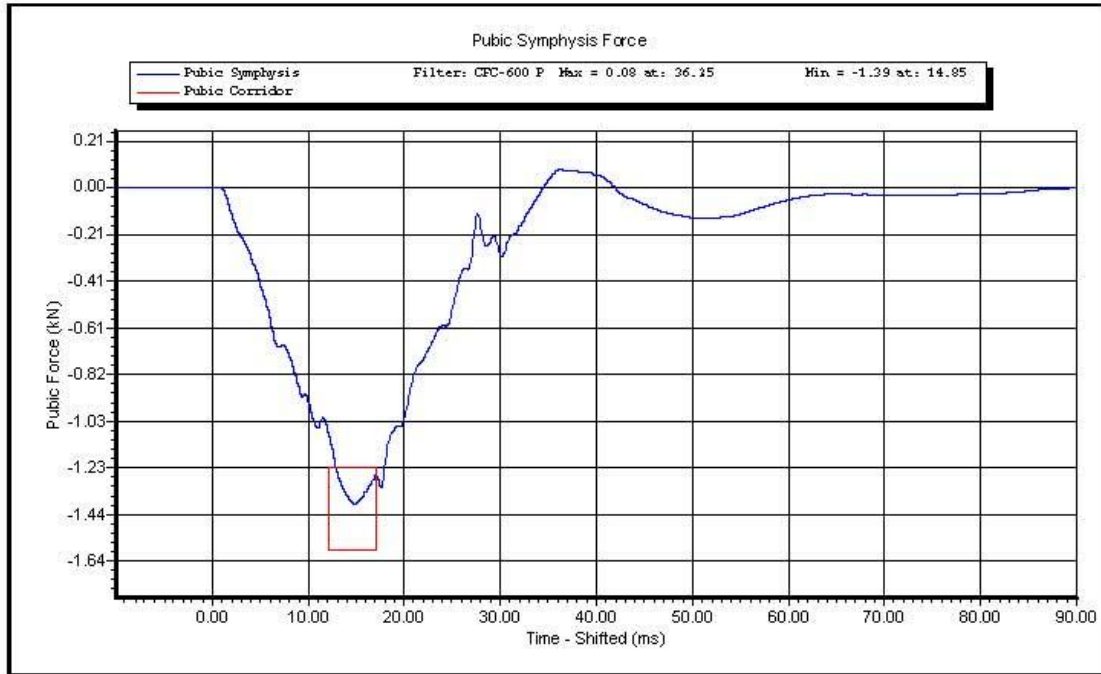
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Test ID:

Test Time: 8:28:29 PM

Test Date: 10/14/2011

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CALIBRATION TEST RESULTS

PRE-TEST

SID-IIs No: 8012

CONFIGURED FOR LEFT SIDE IMPACT



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SID-IIsD External Measurements

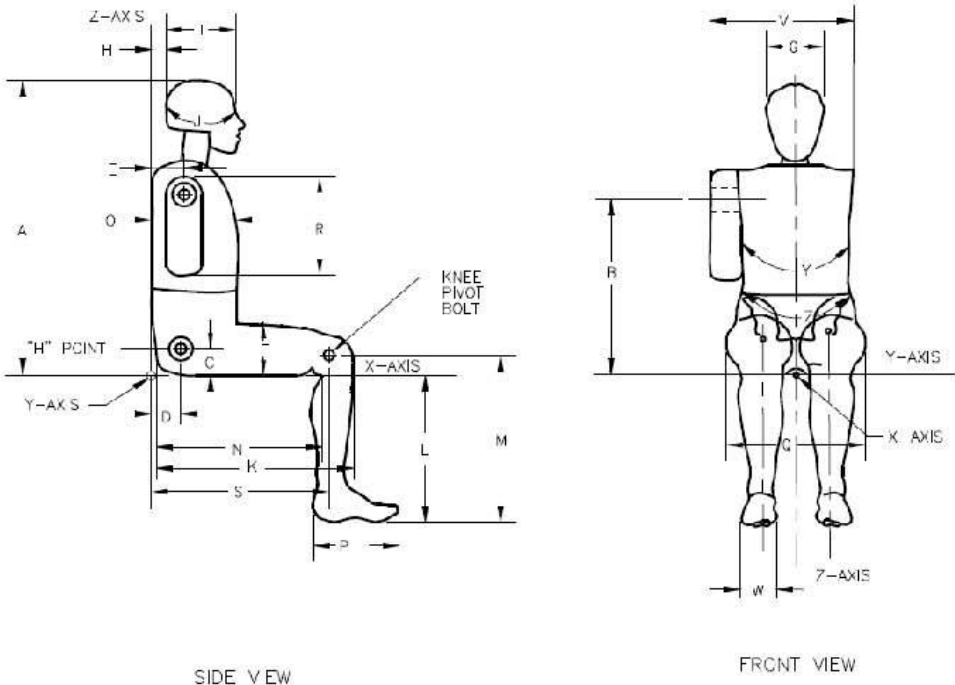
NHTSA ATD S/N DG8012

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	784	Yes
B	Shoulder Pivot Height	437.0 - 453.0	444	Yes
C	H-Point Height	79.0 - 89.0	85	Yes
D	H-Point from Seat Back	141.0 - 151.0	148	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	100	Yes
F	Thigh Clearance	119.0 - 135.0	132	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	43	Yes
I	Head Depth	178.0 - 188.0	187	Yes
J	Head Circumference	541.0 - 551.0	548	Yes
K	Buttock to Knee Length	514.0 - 540.0	530	Yes
L	Popliteal Height	343.0 - 369.0	359	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	402	Yes
N	Buttock Popliteal Length	416.0 - 442.0	434	Yes
O	Chest Depth without Jacket	195.0 - 211.0	204	Yes
P	Foot Length (right)	216.0 - 232.0	223	Yes
Q	Hip Breadth	313.0 - 323.0	315	Yes
R	Arm Length	249.0 - 259.0	257	Yes
S	Knee Joint to Seat back	478.0 - 493.0	490	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	354	Yes
W	Foot Width (right)	78.0 - 94.0	84	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	870	Yes
Z	Waist Circumference	761.0 - 791.0	782	Yes

Technician : AR

Date: 10/17/2011

SID-IIIsD External Dimension Reference Diagram





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VERIFICATION REPORT

Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test Number:	1	Test Date:	10/17/2011
		Test Time:	11:38:13 AM

Component Part Number	Component Serial Number
Head Skin - 180-1002	1362

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.4 deg C P
Humidity	10 -- 70	38 %RH P
Resultant Acceleration	115.0 -- 137.0	122.0 g P
Oscillation	0.0 -- 15.0	1.3 % P
Fore-Aft Acceleration	-15.0 -- 15.0	3.0 g P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID:

Test Time: **11:38:13 AM**

Test Date: **10/17/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Endevco	7264-2000	P51885	10/17/2011
Endevco	7264-2000	P58839	10/17/2011
Endevco	7264-2000	P51991	10/17/2011

Test ID:

Test Time: **11:38:13 AM**

Test Date: **10/17/2011**

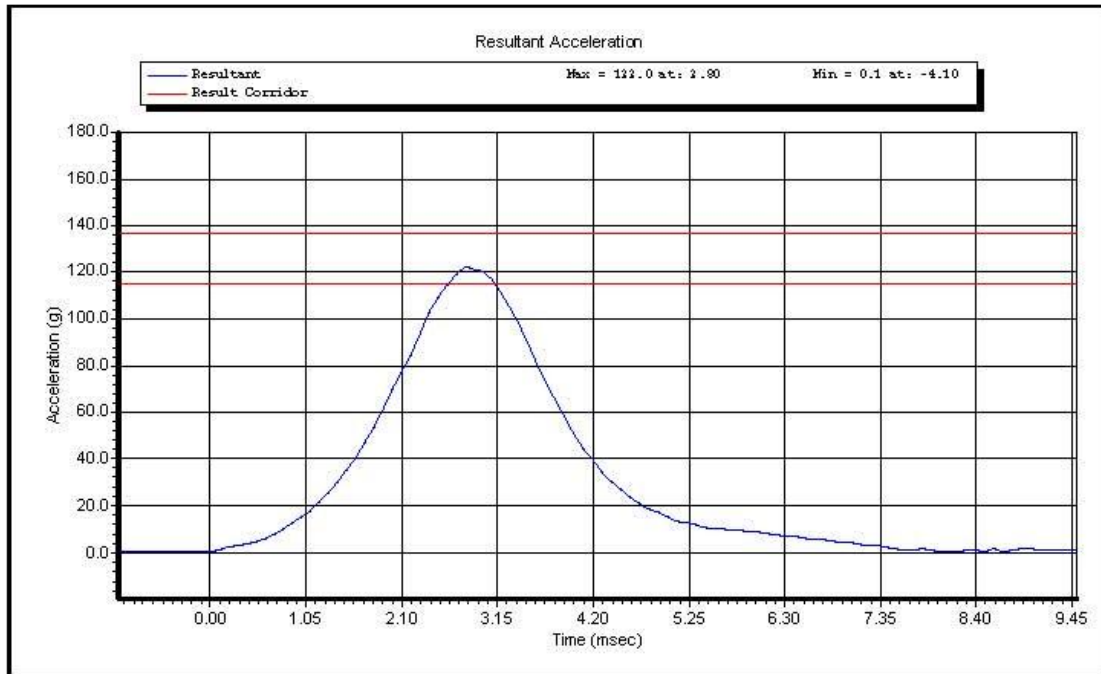


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Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/17/2011
Test Number:	1	Test Time:	11:38:13 AM



Test ID:

Test Time: 11:38:13 AM

Test Date: 10/17/2011

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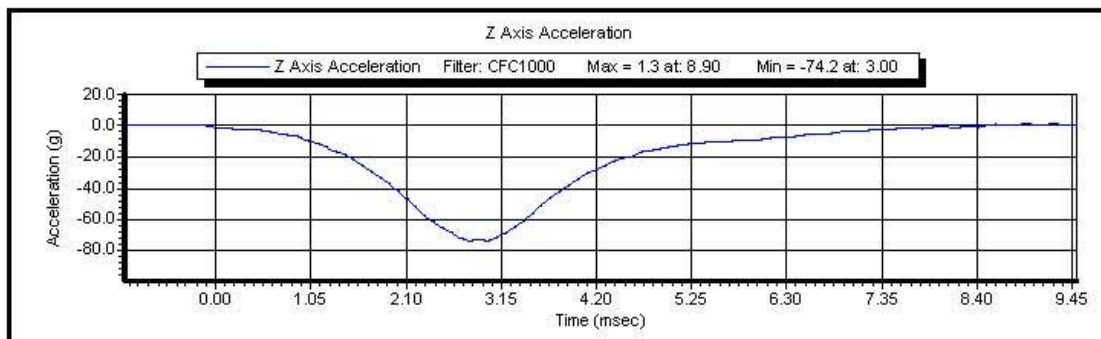
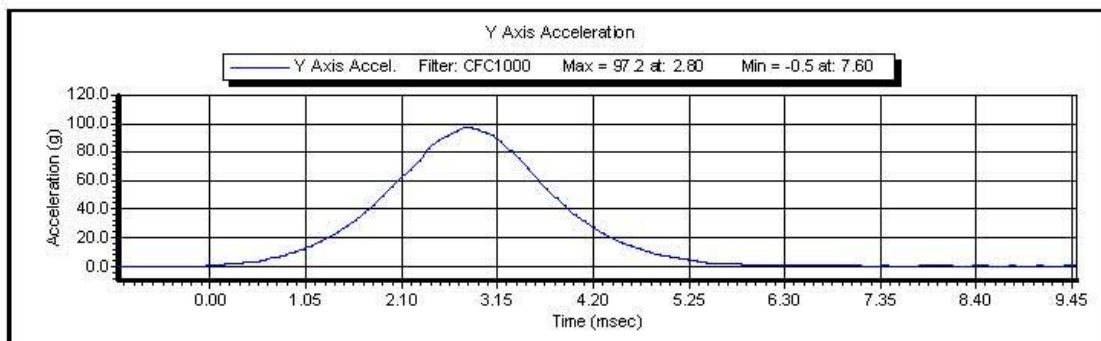
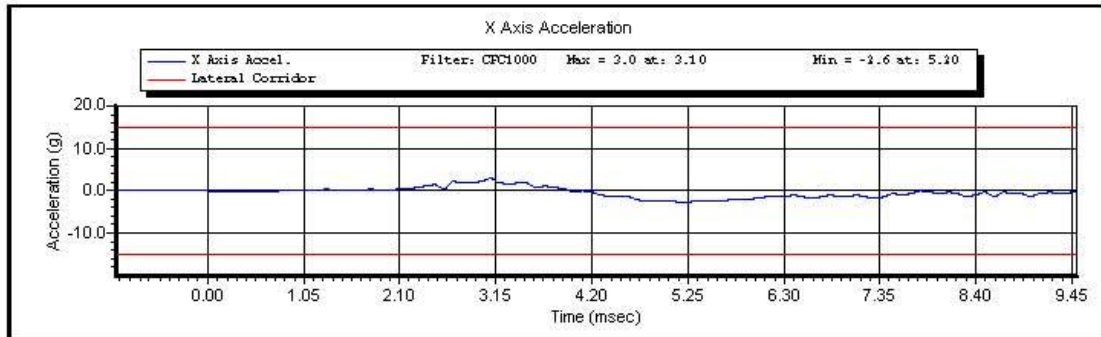
1 of 2



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Test ID:

Test Time: 11:38:13 AM

Test Date: 10/17/2011

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VERIFICATION REPORT

Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/15/2011
Test Number:	1	Test Time:	7:06:05 PM

Component Part Number	Component Serial Number
Neck - 180-2000	DG7061

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.0 deg C P
Humidity	10 -- 70	48 %RH P
Velocity	5.51 -- 5.63	5.55 m/s P
Pendulum Impulse at 10 ms	2.20 -- 2.80	2.53 m/s P
Pendulum Impulse at 15 ms	3.30 -- 4.10	3.66 m/s P
Pendulum Impulse at 20 ms	4.40 -- 5.40	4.96 m/s P
Pendulum Impulse at 25 ms	5.40 -- 6.10	5.77 m/s P
Pendulum Impulse between 25 and 100 ms	5.50 -- 6.20	5.81 m/s P
Max D Plane Rotation	71.0 -- 81.0	76.5 degrees P
Time at Max Rotation	50.0 -- 70.0	61.7 ms P
Moment about OC	-44.0 -- -36.0	-40.5 Nm P
Moment Decay to Zero	102.0 -- 126.0	115.9 ms P

All test parameters are within specifications

Technician: **A. Rudniski**
 Supervisor: **D. Travale**

Test ID:

Test Time: **7:06:05 PM**

Test Date: **10/15/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	C16510	10/3/2011
Denton	1716A	LC-2192Fy	8/31/2011
Denton	1716A	LC-2192Mx	8/31/2011
DentonATD	78051-342	184	5/8/2011
DentonATD	78051-342	174	5/8/2011
DentonATD	78051-342	185	5/8/2011

Test ID:

Test Time: 7:06:05 PM

Test Date: 10/15/2011

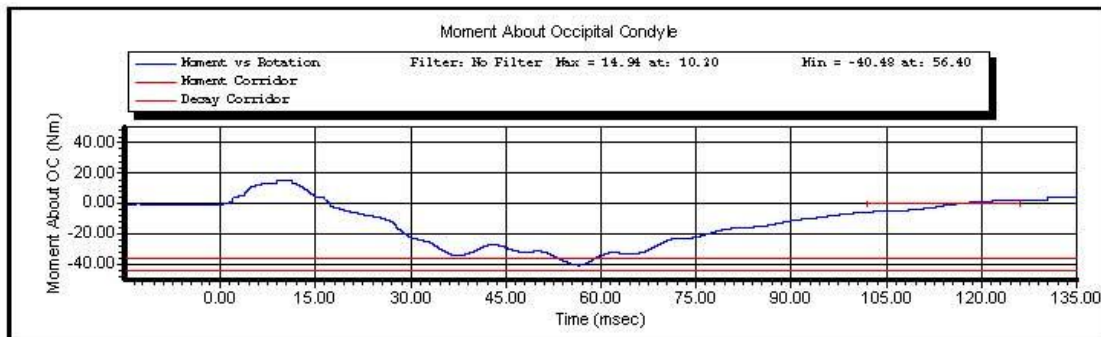
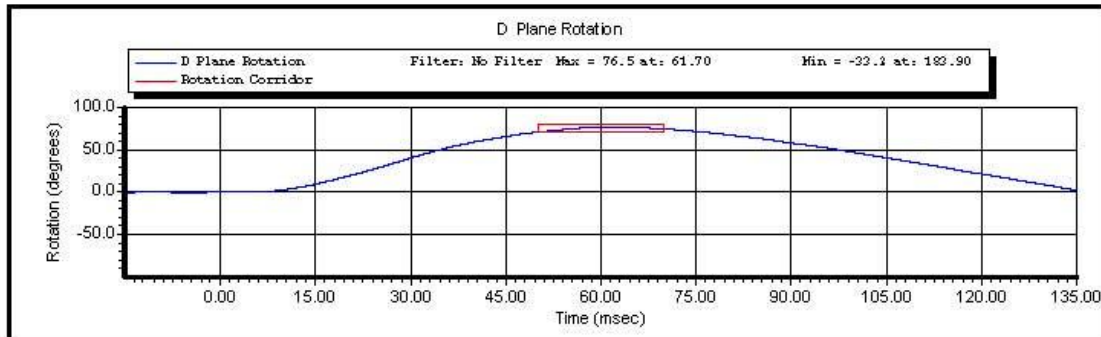


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Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/15/2011
Test Number:	1	Test Time:	7:06:05 PM



Test ID:

Test Time: 7:06:05 PM

Test Date: 10/15/2011

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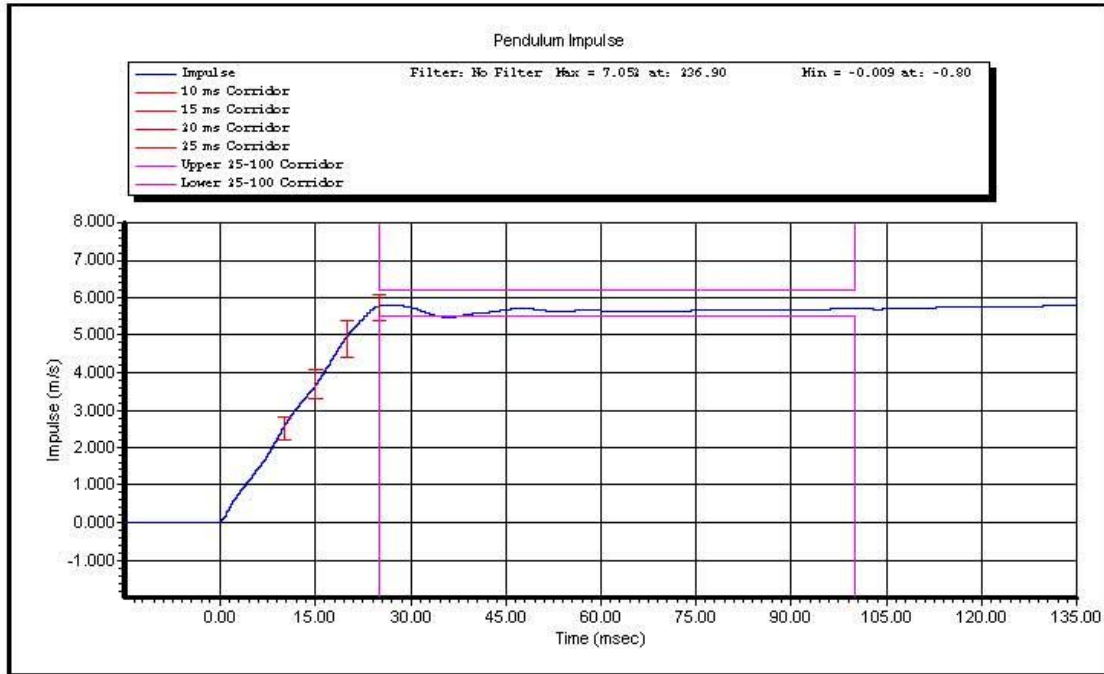
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Test ID:

Test Time: 7:06:05 PM

Test Date: 10/15/2011

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VERIFICATION REPORT

Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test Number:	1	Test Date:	10/16/2011
		Test Time:	11:07:15 AM

Component Part Number	Component Serial Number
Left Arm 180-6011-1	DG3210
Shoulder Rib 180-3355	DG6997
Shoulder Plug 180-6019	

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.10 deg C P
Humidity	10.0 -- 70.0	41.0 %RH P
Velocity	4.20 -- 4.40	4.33 m/s P
Probe Acceleration	13.0 -- 18.0	14.9 g P
Shoulder Deflection	28.0 -- 37.0	29.7 mm P
T1 Acceleration	17.0 -- 22.0	20.0 g P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **11:07:15 AM**

Test Date: **10/16/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
FTSS	180-3881-1	DS-1845	9/1/2011
Endevco	7264-2000	P63561	10/3/2011

Test ID:

Test Time: 11:07:15 AM

Test Date: 10/16/2011

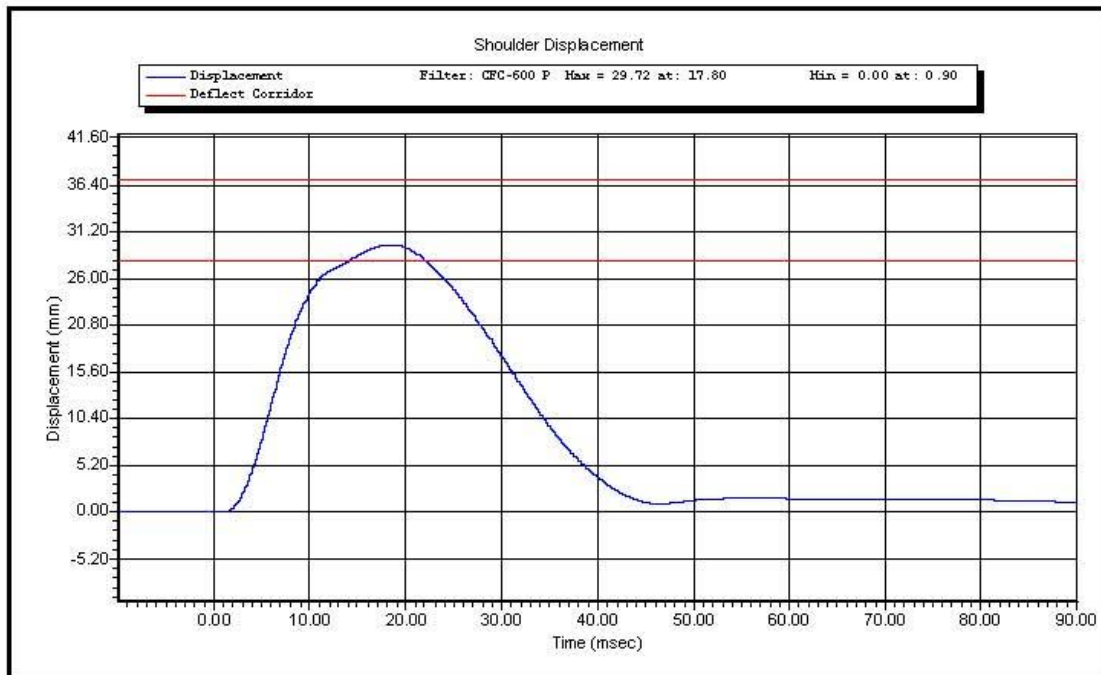


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Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/16/2011
Test Number:	1	Test Time:	11:07:15 AM



Test ID:

Test Time: 11:07:15 AM

Test Date: 10/16/2011

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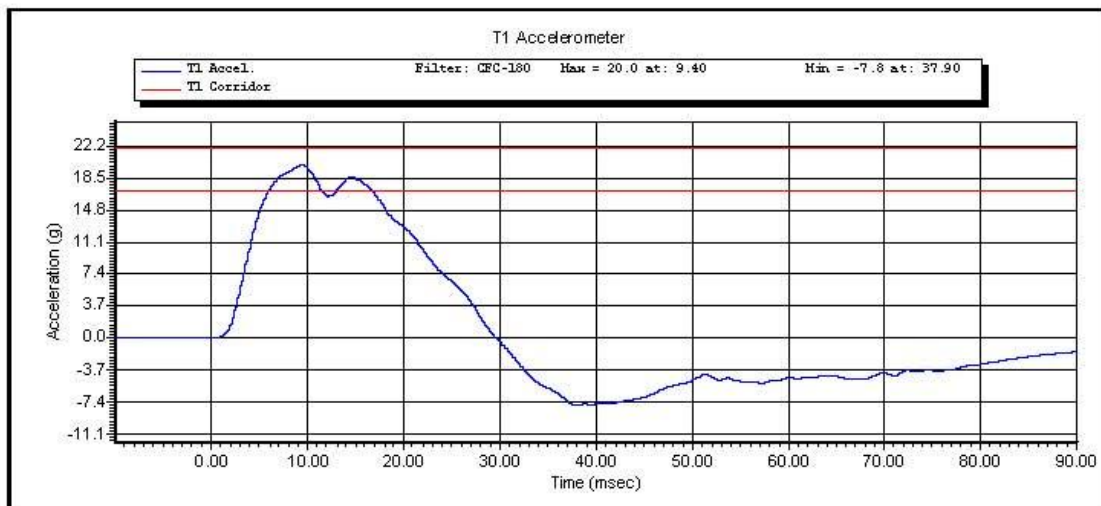
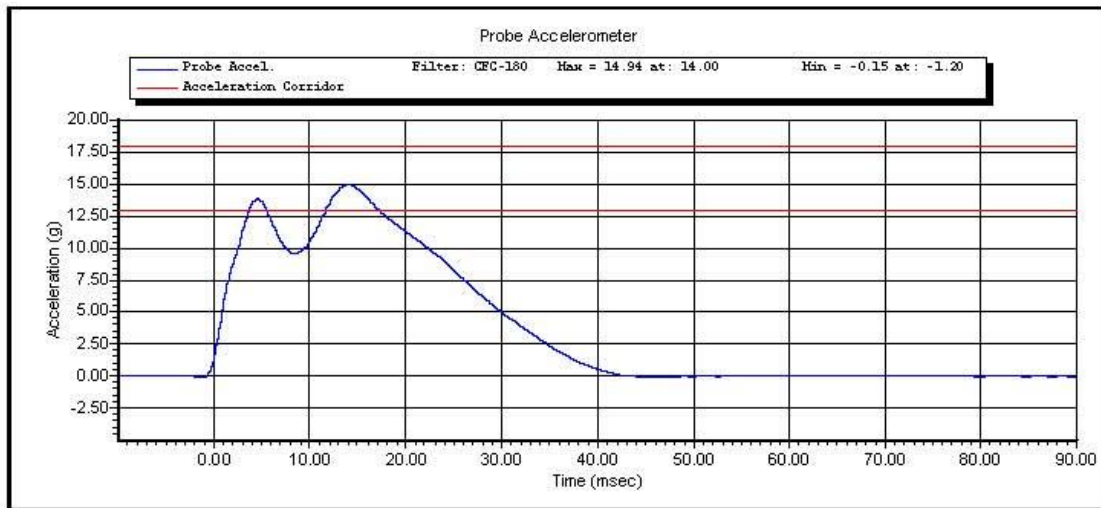
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Test ID:

Test Time: 11:07:15 AM

Test Date: 10/16/2011

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VERIFICATION REPORT

Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/16/2011
Test Number:	1	Test Time:	12:46:30 PM

Component Part Number	Component Serial Number
Thorax Ribs 1, 2, 3 180-3362	DG6080, DG6081, DG7543
Shoulder Rib 180-3355	DG6997
Left Arm 180-6011-1	DG3210

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.1 deg C P
Humidity	10 -- 70	44 %RH P
Velocity	6.60 -- 6.80	6.67 m/s P
Probe Acceleration after 5ms	30.0 -- 36.0	33.2 g P
Upper Thorax Rib Deflection	25.0 -- 32.0	28.3 mm P
Mid Thorax Rib Deflection	30.0 -- 36.0	31.6 mm P
Lower Thorax Rib Deflection	32.0 -- 38.0	33.3 mm P
Upper Spine Acceleration ("y")	34.0 -- 43.0	40.5 g P
Lower Spine Acceleration ("y")	29.0 -- 37.0	33.3 g P
Shoulder Deflection	31.0 -- 40.0	34.5 mm P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **12:46:30 PM**

Test Date: **10/16/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
FTSS	180-3881-1	DS-1849	9/1/2011
FTSS	180-3881-1	DS-1857	9/1/2011
FTSS	180-3881-1	DS-1859	9/1/2011
Endevco	7264-2000	P63561	10/3/2011
Endevco	7264-2000	P58796	10/5/2011
FTSS	180-3881-1	DS-1845	9/1/2011

Test ID:

Test Time: 12:46:30 PM

Test Date: 10/16/2011

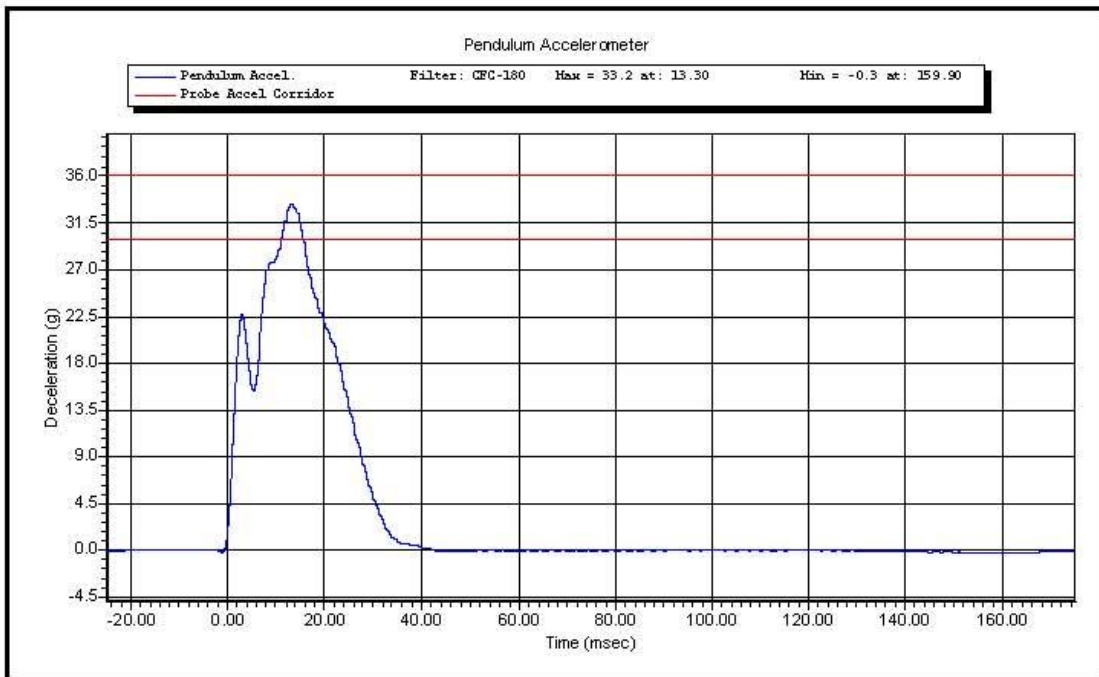


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Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/16/2011
Test Number:	1	Test Time:	12:46:30 PM



Test ID:

Test Time: 12:46:30 PM

Test Date: 10/16/2011

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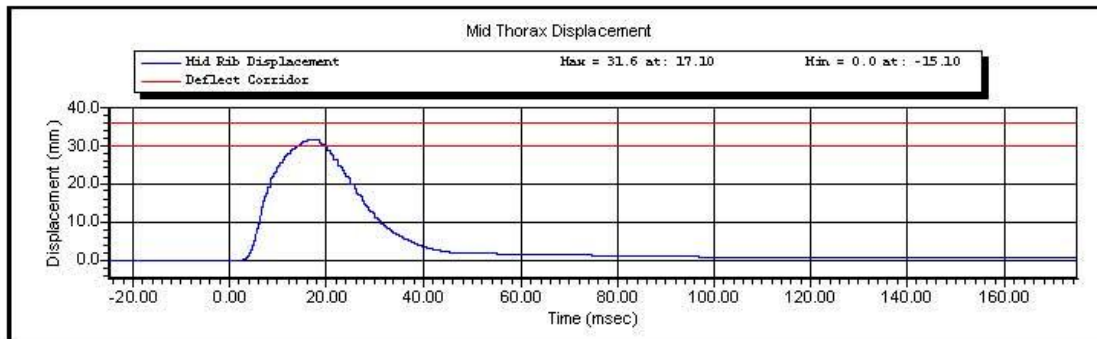
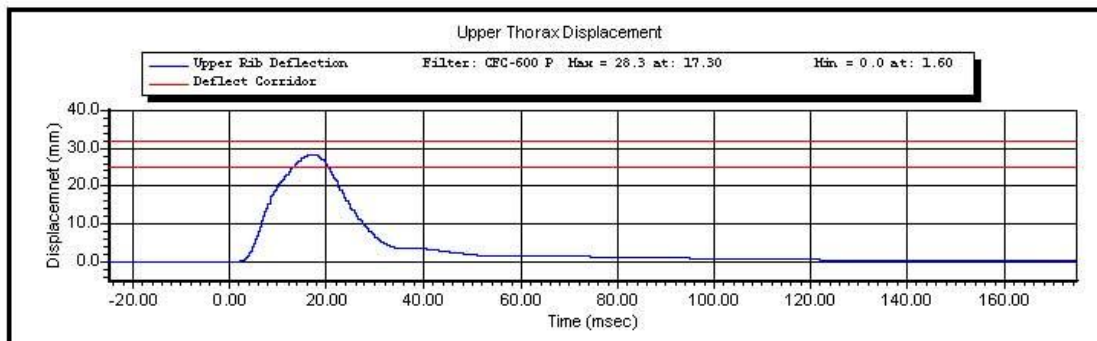
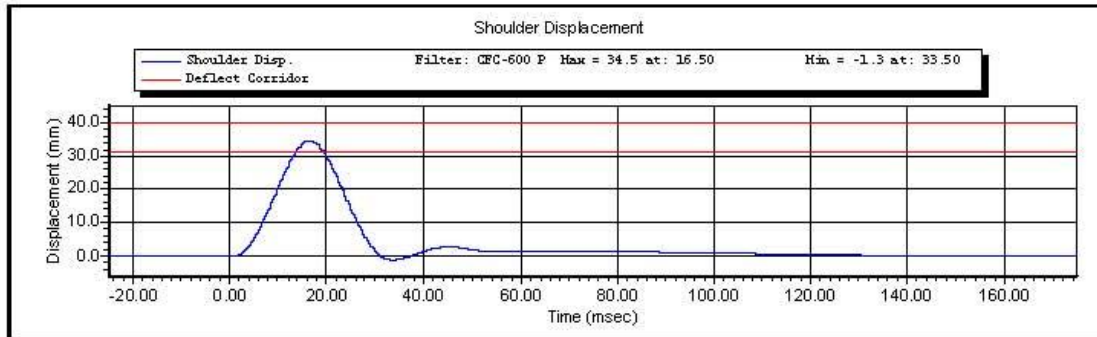
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Test ID:

Test Time: 12:46:30 PM

Test Date: 10/16/2011

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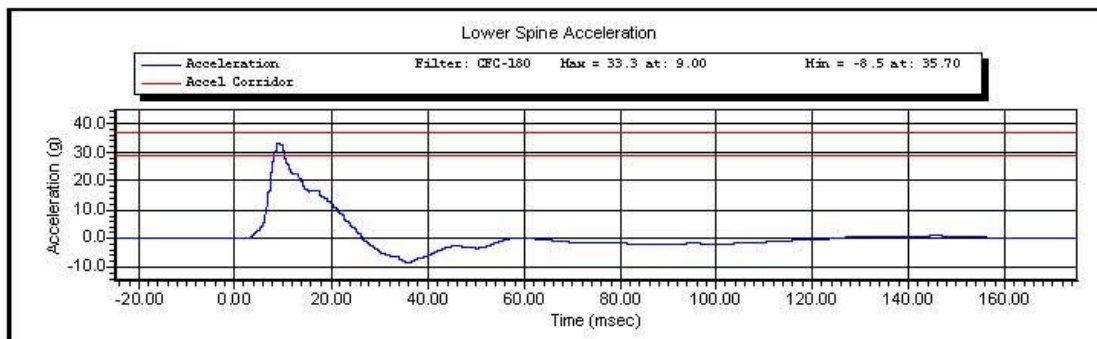
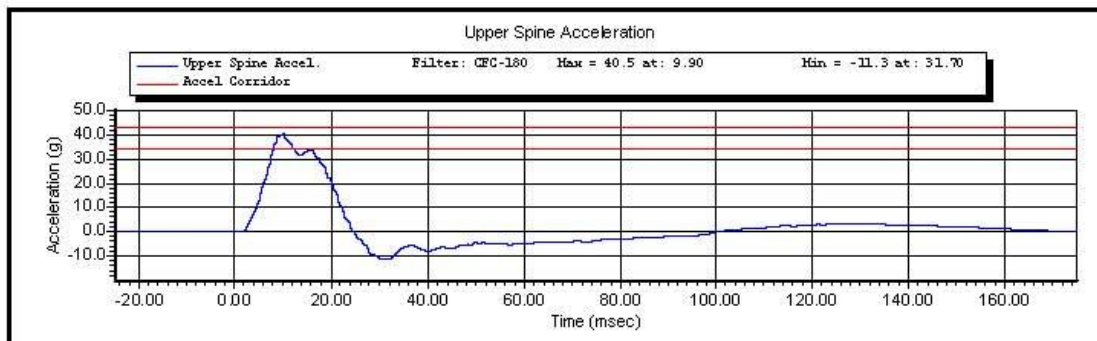
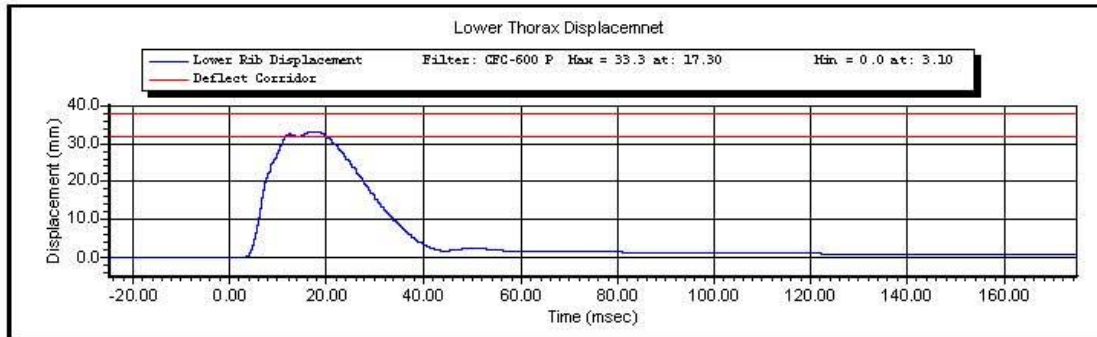
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Test ID:

Test Time: 12:46:30 PM

Test Date: 10/16/2011

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VERIFICATION REPORT

Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/16/2011
Test Number:	1	Test Time:	12:10:46 PM

Component Part Number	Component Serial Number
Thorax Ribs 1, 2, 3	DG6080, DG6081, DG7543

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.1 deg C P
Humidity	10 -- 70	44 %RH P
Velocity	4.20 -- 4.40	4.31 m/s P
Probe Acceleration	14.0 -- 18.0	16.6 g P
Upper Thorax Rib Deflection	32.0 -- 40.0	36.7 mm P
Mid Thorax Rib Deflection	39.0 -- 45.0	41.8 mm P
Lower Thorax Rib Deflection	35.0 -- 43.0	39.2 mm P
Upper Spine Acceleration T1	13.0 -- 17.0	16.1 g P
Lower Spine Acceleration T12	7.0 -- 11.0	10.1 g P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID:

Test Time: **12:10:46 PM**

Test Date: **10/16/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
FTSS	180-3881-1	DS-1849	9/1/2011
FTSS	180-3881-1	DS-1857	9/1/2011
FTSS	180-3881-1	DS-1859	9/1/2011
Endevco	7264-2000	P63561	10/3/2011
Endevco	7264-2000	P58796	10/5/2011

Test ID:

Test Time: 12:10:46 PM

Test Date: 10/16/2011

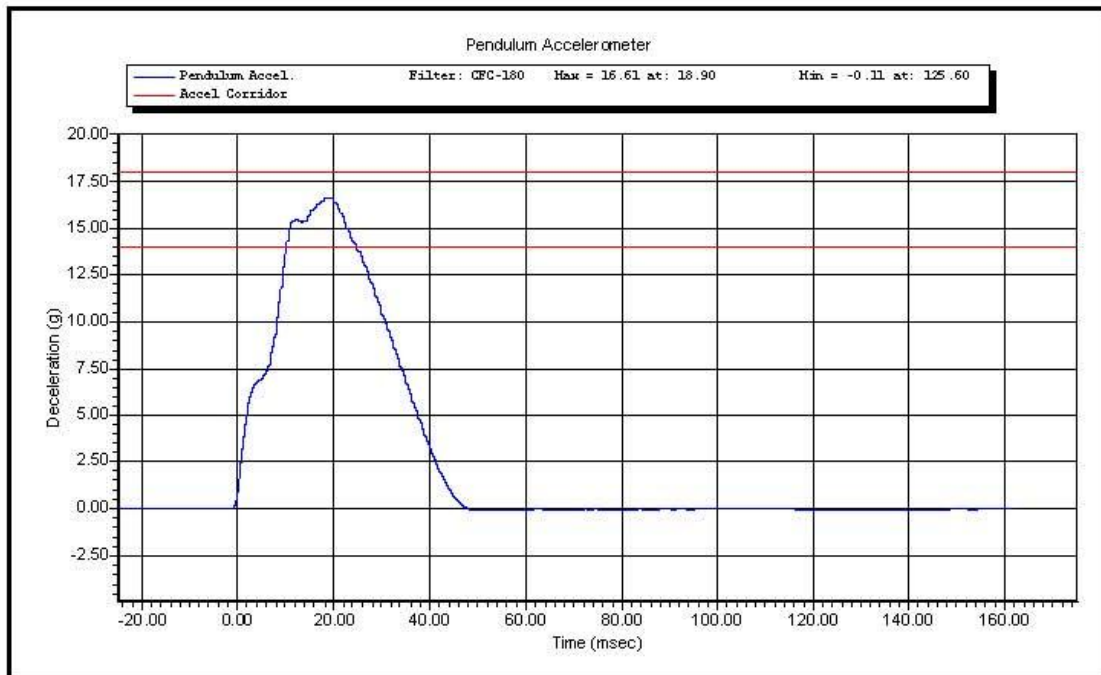


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Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/16/2011
Test Number:	1	Test Time:	12:10:46 PM



Test ID:

Test Time: 12:10:46 PM

Test Date: 10/16/2011

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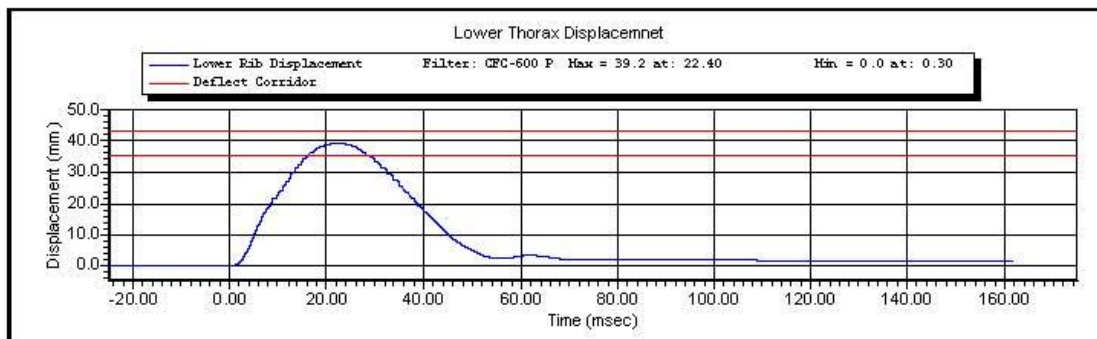
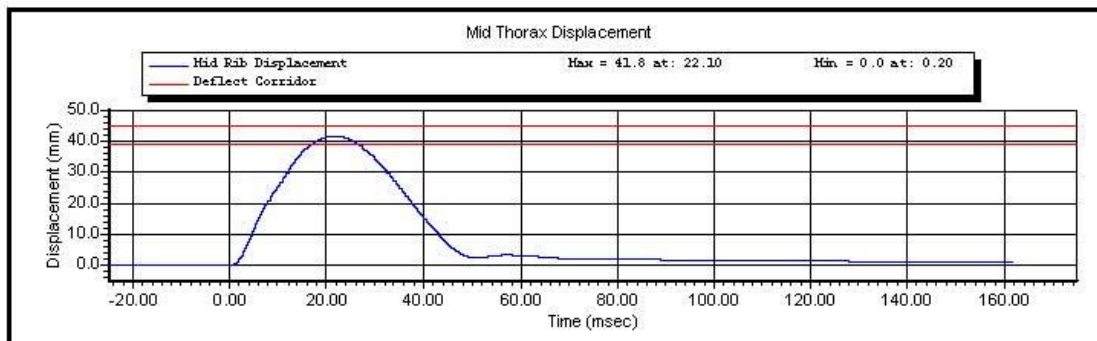
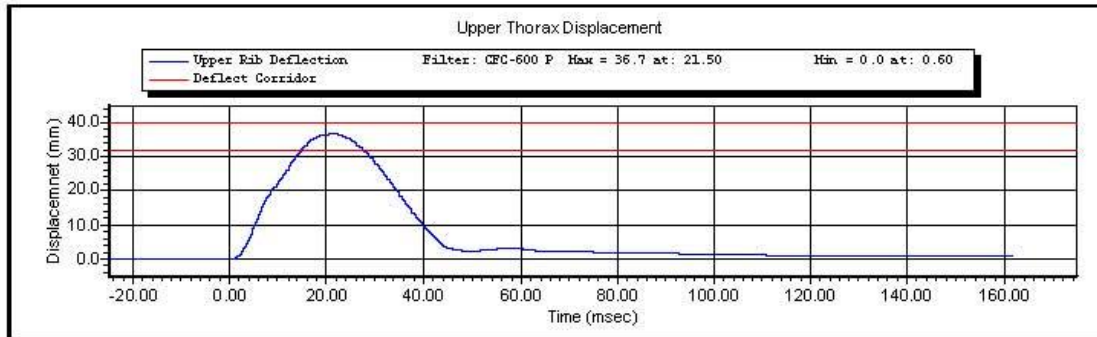
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Test Date: 10/16/2011

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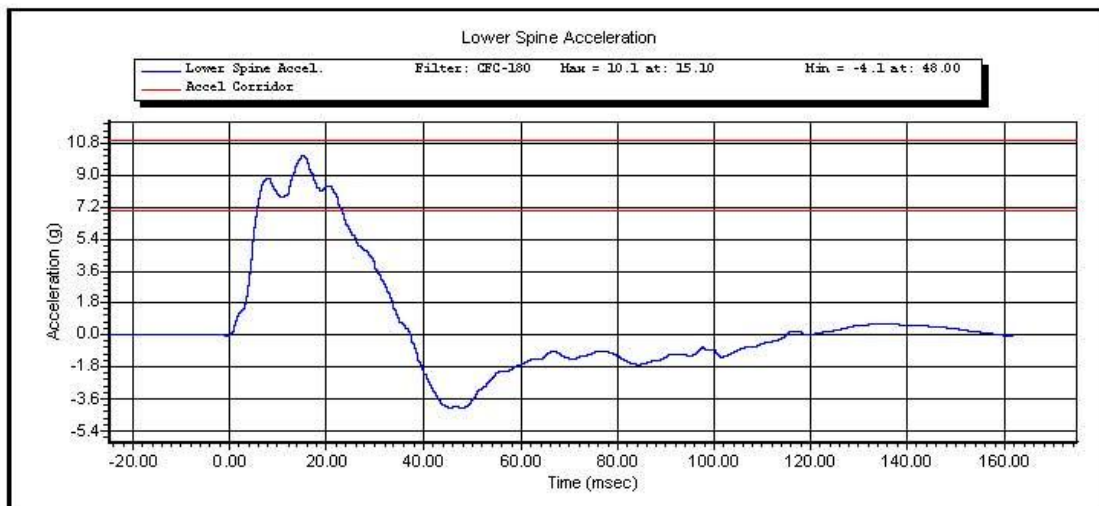
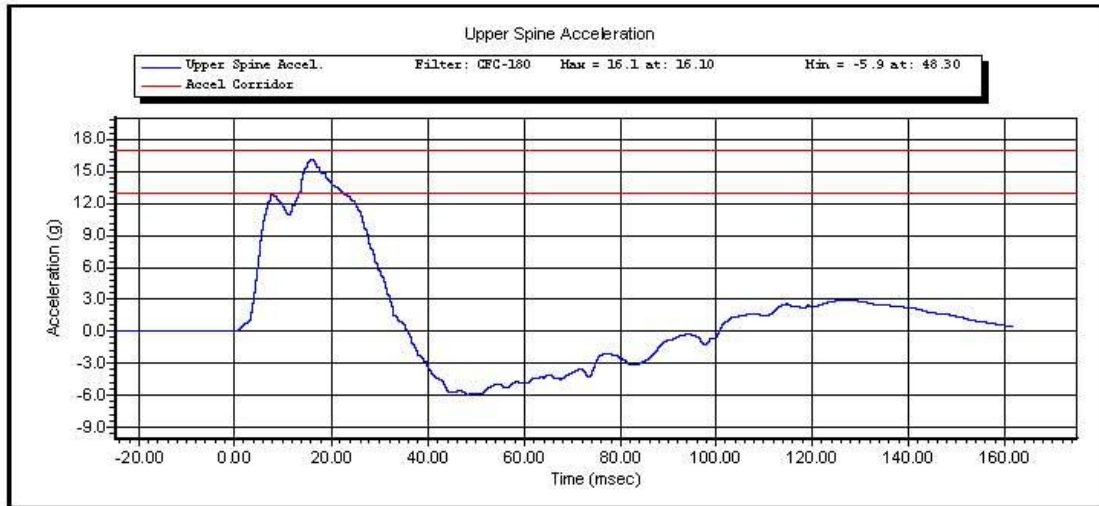
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Test Time: 12:10:46 PM

Test Date: 10/16/2011

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VERIFICATION REPORT

Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/16/2011
Test Number:	1	Test Time:	11:37:51 AM

Component Part Number	Component Serial Number
Thorax Ribs 4, 5	DG7011, DG7012

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.1 deg C P
Humidity	10 -- 70	42 %RH P
Velocity	4.20 -- 4.40	4.32 m/s P
Probe Acceleration	12.0 -- 16.0	14.9 g P
Upper Abdominal Rib Deflection	36.0 -- 47.0	40.7 mm P
Lower Abdominal Rib Deflection	33.0 -- 44.0	38.0 mm P
Lower Spine Acceleration - T12	9.0 -- 14.0	11.6 g P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **11:37:51 AM**

Test Date: **10/16/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
FTSS	180-3881-1	DS-1860	9/1/2011
FTSS	180-3881-1	DS-1861	9/1/2011
Endevco	7264-2000	P58796	10/5/2011

Test ID:

Test Time: 11:37:51 AM

Test Date: 10/16/2011

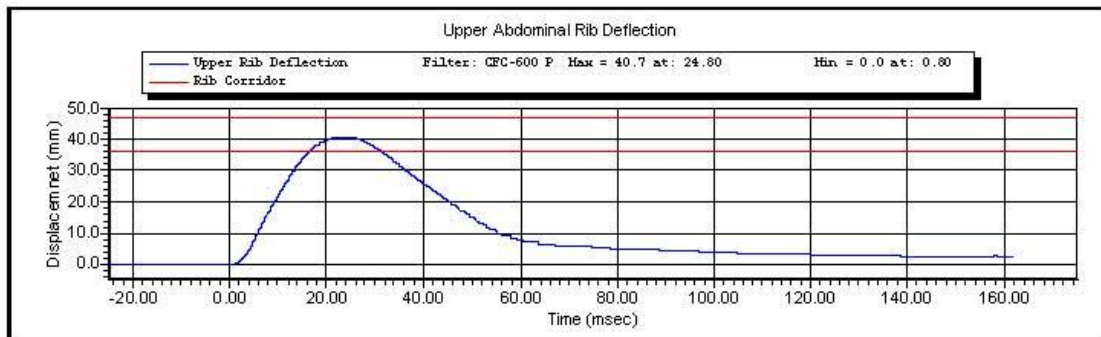
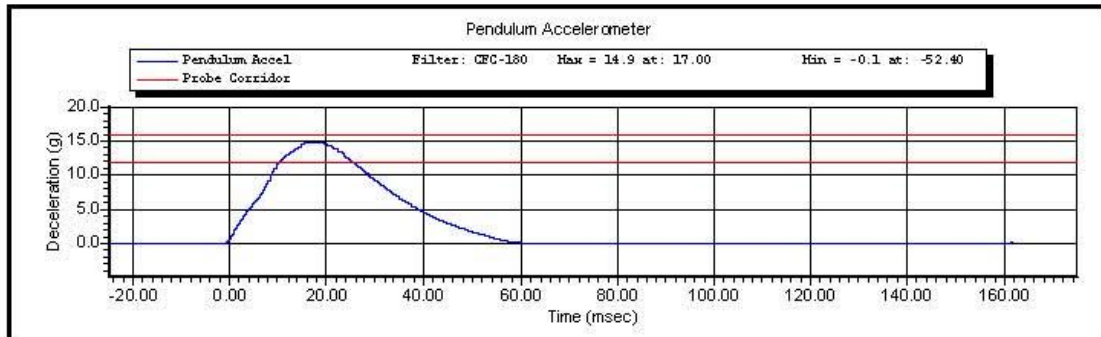


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Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/16/2011
Test Number:	1	Test Time:	11:37:51 AM



Test ID:

Test Time: 11:37:51 AM

Test Date: 10/16/2011

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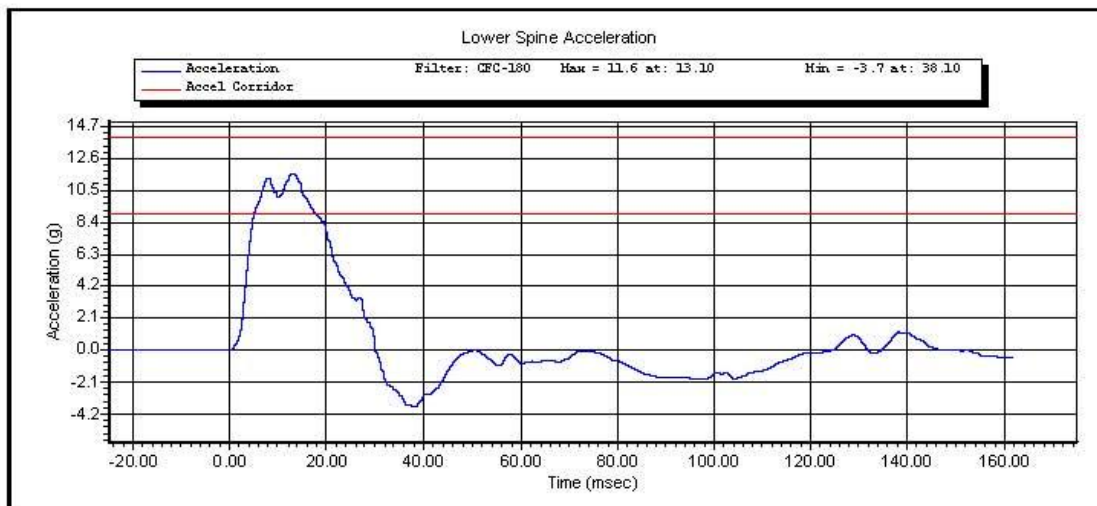
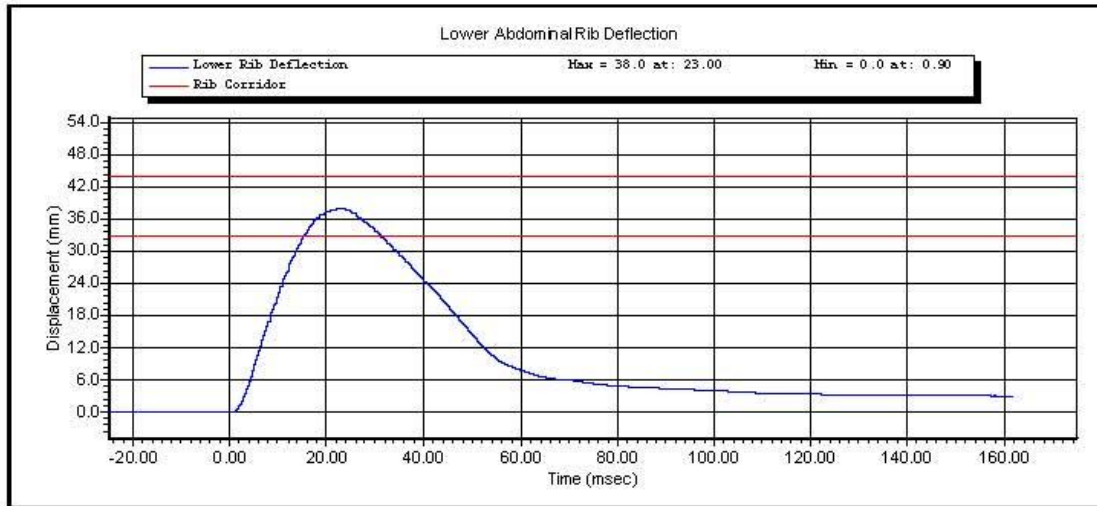
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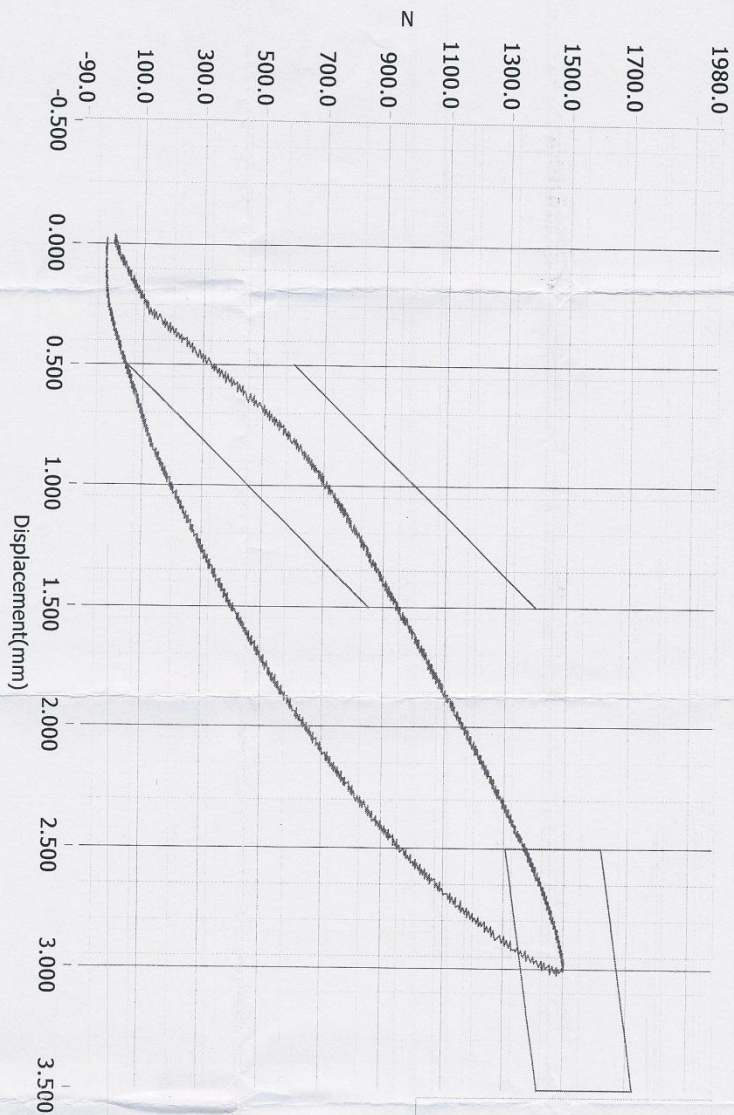
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Test Date: 10/16/2011

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2 of 2

Resultant Data - SIDIIs Plug Compression



Loading Curve
 Boundary Limit Upper
 Boundary Limit Lower
 Peak Load Upper
 Peak Load Lower
 Peak Defl Upper
 Peak Defl Lower

ATD Calibration Lab

Test ID

Part Serial Number

Test Date

Test Time

Cert ID

ATD Serial Number

ATD Type

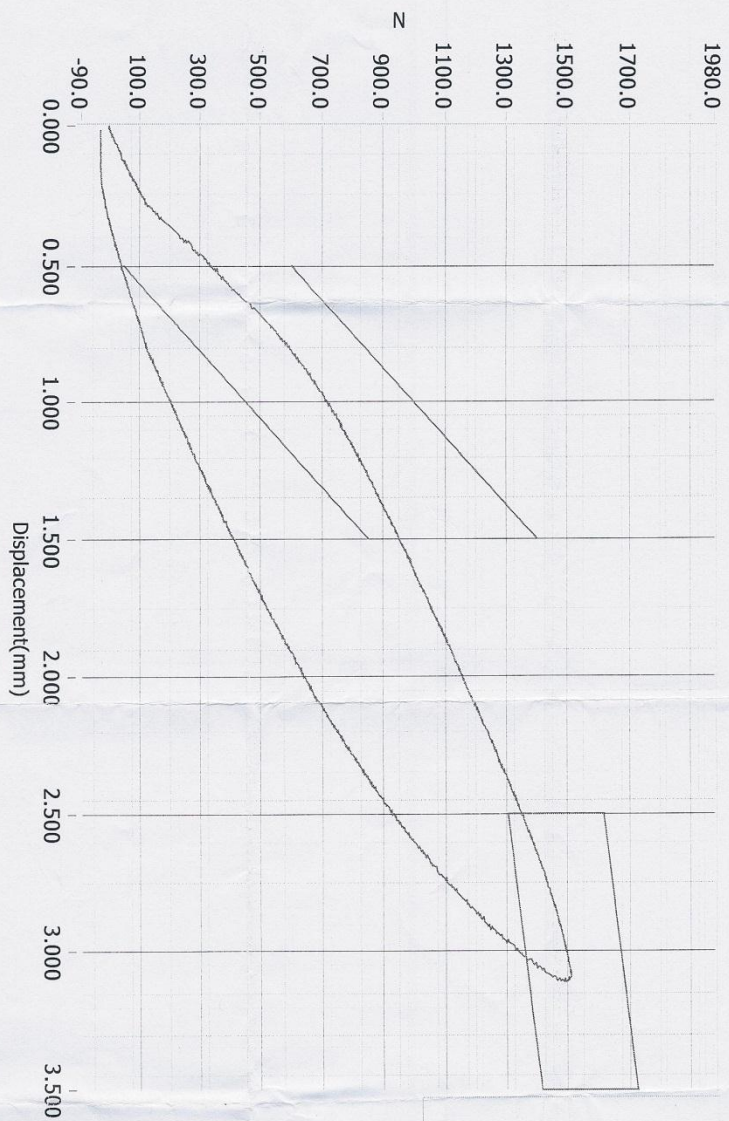
36660

SIDIIs

Current Date : 9/27/2010

Current Time : 19:06:49

Resultant Data - SIDIIS Plug Compression



Loading Curve
 Boundary Limit Upper
 Boundary Limit Lower
 Peak Load Upper
 Peak Load Lower
 Peak Defl Upper
 Peak Defl Lower

ATD Calibration Lab

Test ID

Part Serial Number

Test Date

Test Time

Cert ID

ATD Serial Number

ATD Type

36414

SIDIIS

Current Date : 9/23/2010

Current Time : 08:17:12



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VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test Number:	2	Test Date:	10/17/2011
		Test Time:	9:11:19 AM

Component Part Number	Component Serial Number
180-4343 Pelvis Flesh	DG3207
FTSS Certification Plug - 1500N	36660
FTSS Full Scale Test Plug - 1496N	36414

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.5 deg C P
Humidity	10 -- 70	38 %RH P
Velocity	6.60 -- 6.80	6.61 m/s P
Peak Probe Acceleration	38.0 -- 47.0	44.6 g P
Peak Pelvis Acceleration	34.0 -- 42.0	41.4 g P
Peak Acetabulum Force	3.60 -- 4.30	3.78 kN P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID:

Test Time: **9:11:19 AM**

Test Date: **10/17/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
Endevco	7264-2000	P51875	9/29/2011
FTSS	IF-520	LC-102Fy	3/25/2011

Test ID:

Test Time: **9:11:19 AM**

Test Date: **10/17/2011**

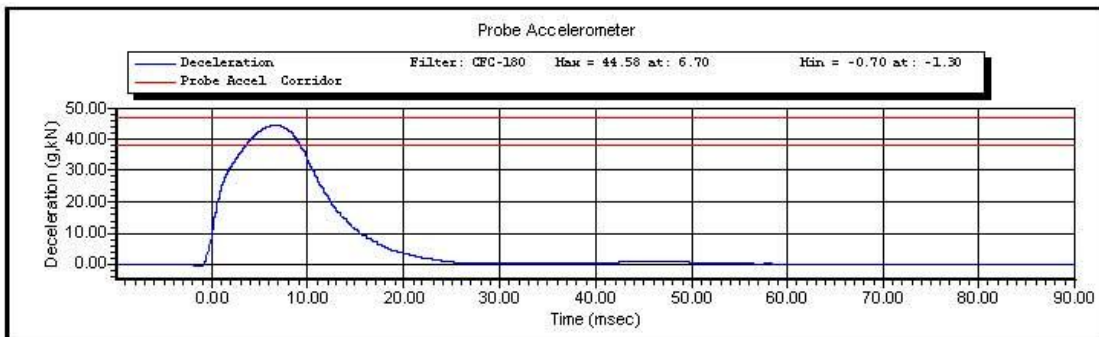
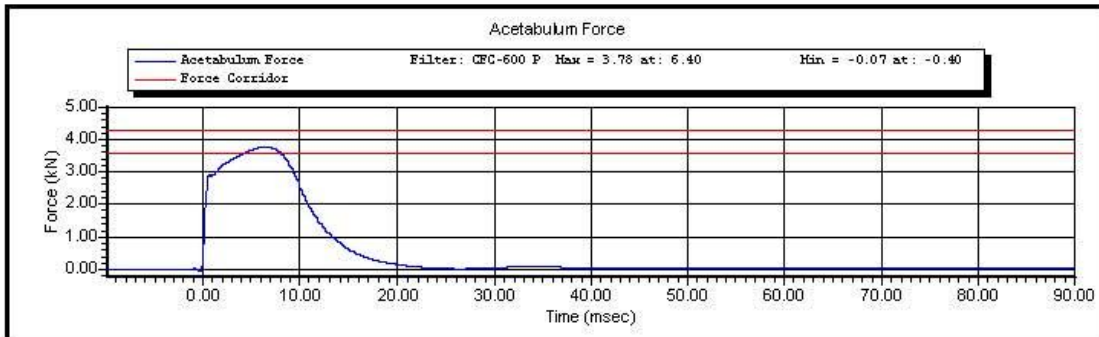


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Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/17/2011
Test Number:	2	Test Time:	9:11:19 AM



Test ID:

Test Time: **9:11:19 AM**

Test Date: **10/17/2011**

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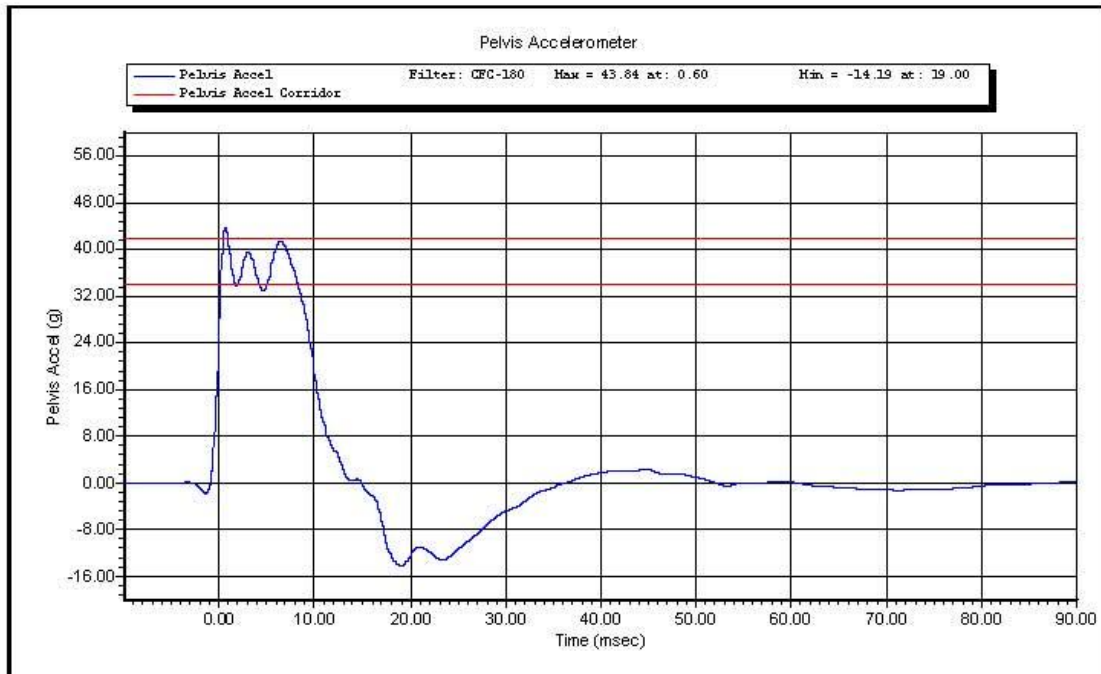
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Test ID:

Test Time: 9:11:19 AM

Test Date: 10/17/2011

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VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/15/2011
Test Number:	1	Test Time:	7:51:26 PM

Component Part Number	Component Serial Number
180-4343 Pelvis Flesh	DG3207

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.1 deg C P
Humidity	10 -- 70	46 %RH P
Velocity	4.20 -- 4.40	4.33 m/s P
Peak Probe Acceleration	36.0 -- 45.0	43.1 g P
Peak Pelvis Acceleration	28.0 -- 39.0	34.4 g P
Peak Iliac Force	4.10 -- 5.10	4.78 kN P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID:

Test Time: **7:51:26 PM**

Test Date: **10/15/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
Endevco	7264-2000	P51875	9/29/2011
DentonATD	3228J	LC-281Fy	8/31/2011

Test ID:

Test Time: **7:51:26 PM**

Test Date: **10/15/2011**

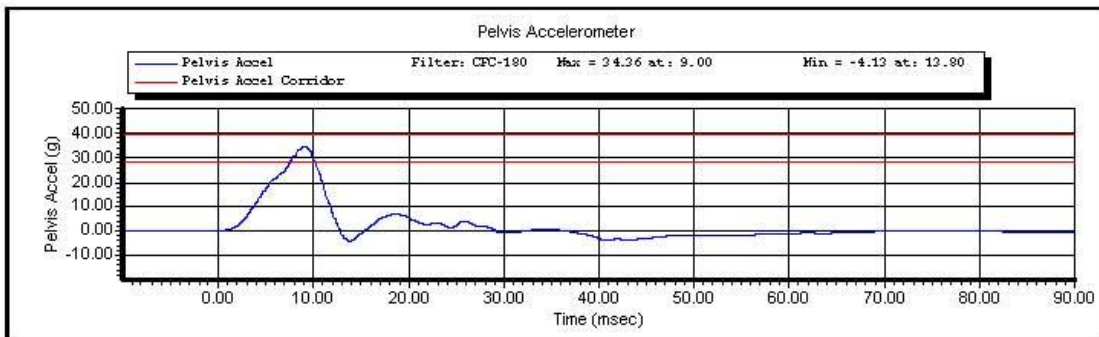
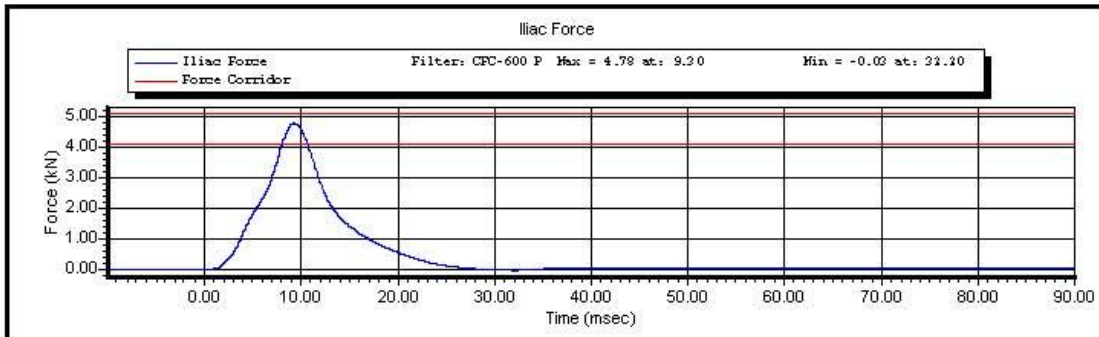


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Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-Ils		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/15/2011
Test Number:	1	Test Time:	7:51:26 PM



Test ID:

Test Time: **7:51:26 PM**

Test Date: **10/15/2011**

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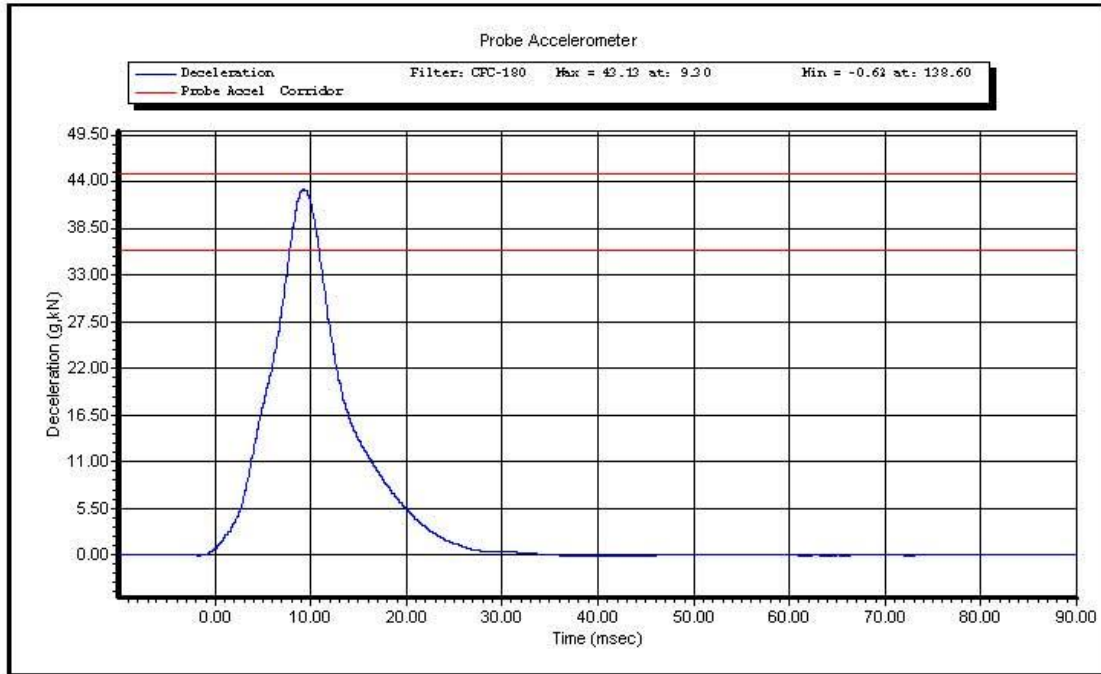
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Test ID:

Test Time: 7:51:26 PM

Test Date: 10/15/2011

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CALIBRATION TEST RESULTS

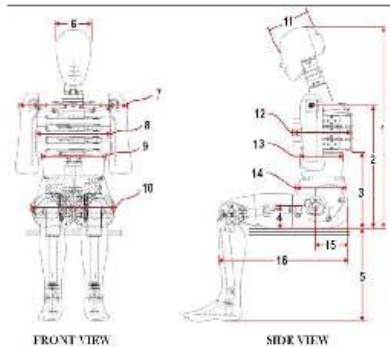
POST-TEST

ES2-re No: F034

CONFIGURED FOR LEFT SIDE IMPACT

ES-2re External Measurements

NHTSA S/N F034



Dim. No.	Description	Specification (mm)	Result (mm)	Pass/Fail
1	Sitting Height	900-918	914	Pass
2	Seat to Shoulder Joint	558-572	565	Pass
3	Seat to Lower Face of Thoracic Spine Box	346-356	354	Pass
4	Seat to Hip Joint (center of bolt)	97-103	101	Pass
5	Sole to Seat, Sitting	433-451	445	Pass
6	Head Width	152-158	155	Pass
7	Shoulder/Arm Width	461-479	465	Pass
8	Thorax Width	322-332	324	Pass
9	Abdomen Width	273-287	283	Pass
10	Pelvis Lap Width	359-373	370	Pass
11	Head Depth	196-206	201	Pass
12	Thorax Depth	262-272	267	Pass
13	Abdomen Depth	194-204	199	Pass
14	Pelvis Depth	235-245	237	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150-160	155	Pass
16	Back of Buttocks to Front Knee	597-615	604	Pass

Technician: DS

Date: 10/19/2011



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VERIFICATION REPORT

Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/19/2011
Test Number:	1	Test Time:	1:31:47 PM

Component Part Number	Component Serial Number
455-1007 Head Skin	8468

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.9 deg C P
Humidity	10 -- 70	45 %RH P
Resultant Acceleration	125 -- 155	142 g P
Oscillation	0.0 -- 15.0	3.7 % P
Fore-Aft Acceleration	-15.00 -- 15.00	6.21 g P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID:

Test Time: **1:31:47 PM**

Test Date: **10/19/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Endevco	7264-2000	P58737	9/29/2011
Endevco	7264-2000	P52022	9/29/2011
Endevco	7264-2000	P52040	9/29/2011

Test ID:

Test Time: **1:31:47 PM**

Test Date: **10/19/2011**

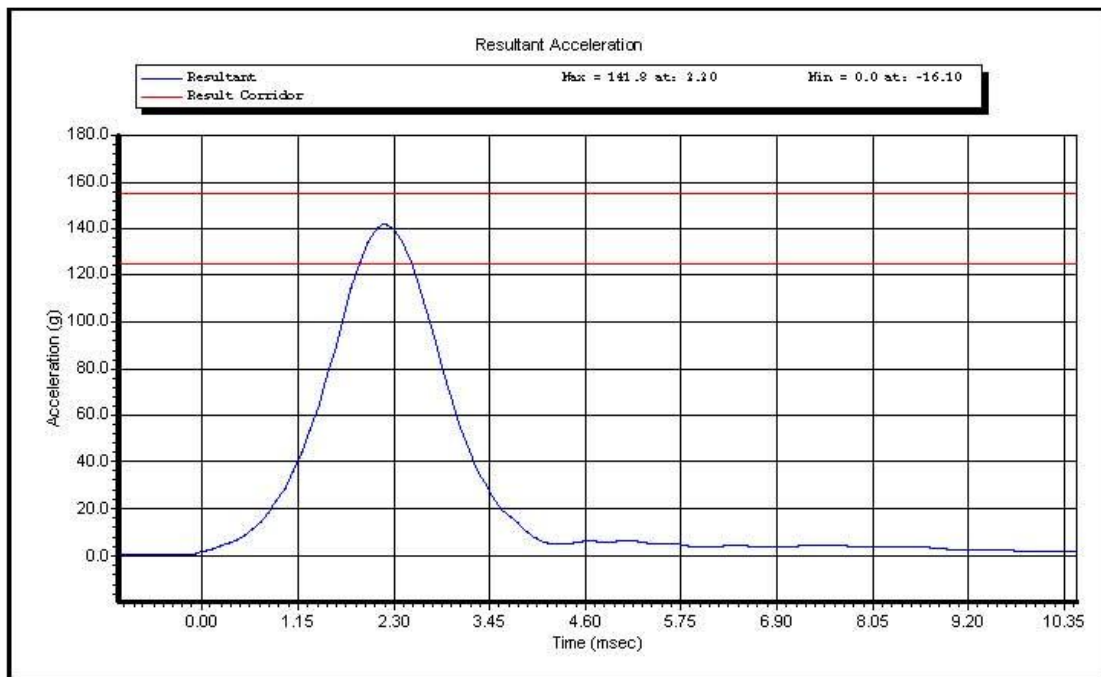


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Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/19/2011
Test Number:	1	Test Time:	1:31:47 PM



Test ID:

Test Time: 1:31:47 PM

Test Date: 10/19/2011

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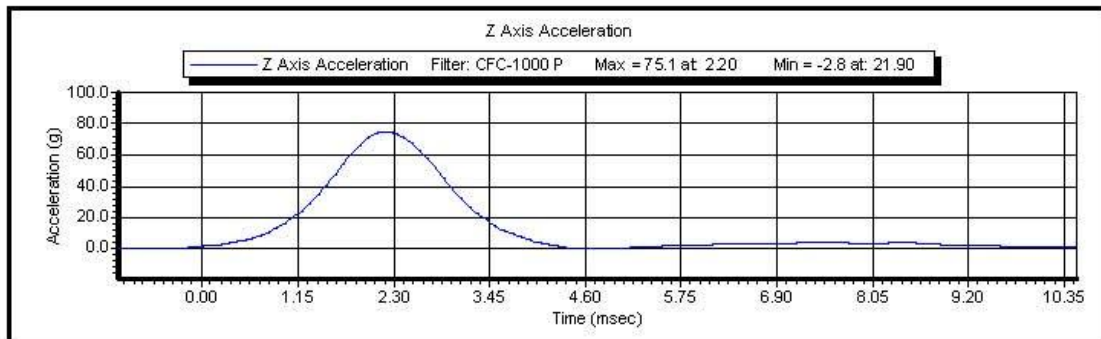
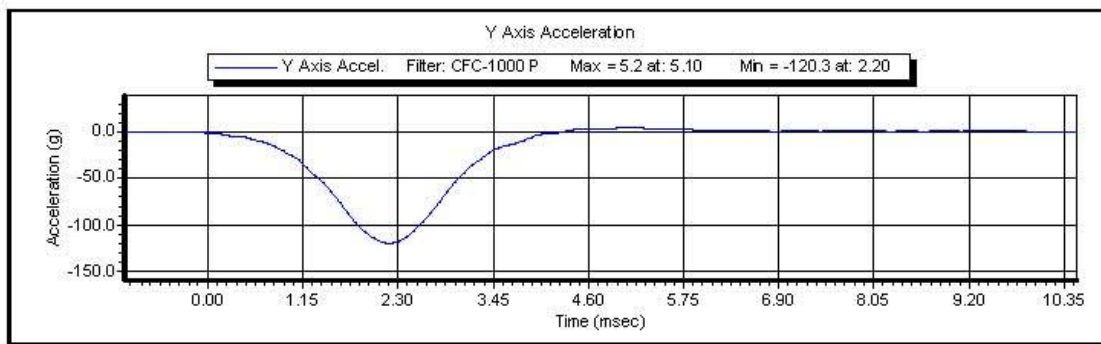
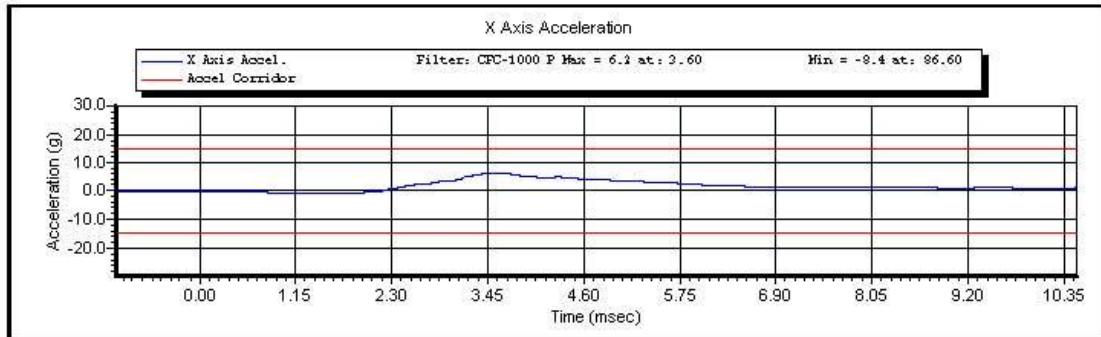
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Test ID:

Test Time: 1:31:47 PM

Test Date: 10/19/2011

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VERIFICATION REPORT

Test Name:	Neck Flexion	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test Number:	1	Test Date:	10/19/2011
		Test Time:	10:22:01 AM

Component Part Number	Component Serial Number
455-2002 Neck	07066

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.8 deg C P
Humidity	10 -- 70	43 %RH P
Velocity	3.30 -- 3.50	3.44 m/s P
Maximum Neck Flexion Angle	49.0 -- 59.0	51.3 degrees P
Time At Maximum Neck Flexion	54.0 -- 66.0	61.5 ms P
Decay to Zero Degrees	53.0 -- 88.0	58.3 ms P
Velocity Corridor	--	P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **10:22:01 AM**

Test Date: **10/19/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	C16510	10/3/2011
DentonATD	7000428	094	4/25/2011
DentonATD	7000428	095	4/25/2011
DentonATD	7000428	093	4/25/2011

Test ID:

Test Time: 10:22:01 AM

Test Date: 10/19/2011

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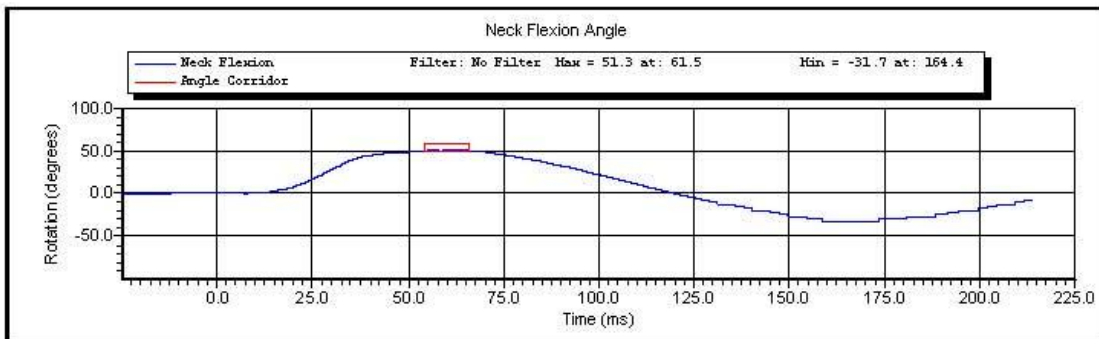
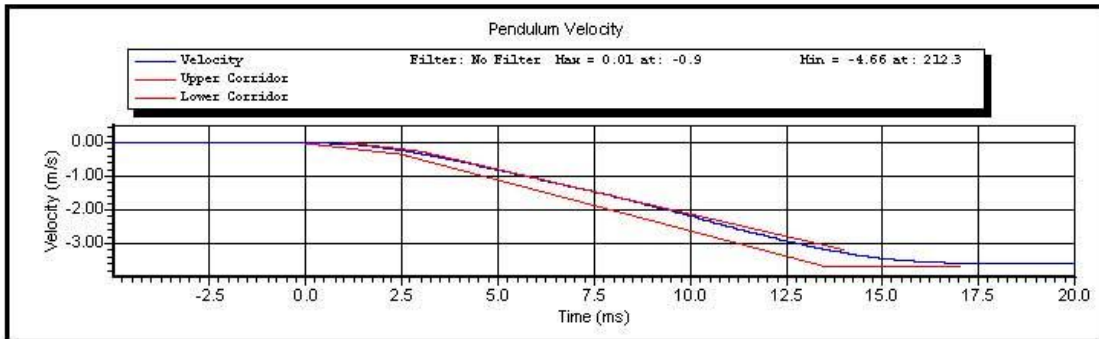


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Test Name:	Neck Flexion	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/19/2011
Test Number:	1	Test Time:	10:22:01 AM



Test ID:

Test Time: 10:22:01 AM

Test Date: 10/19/2011

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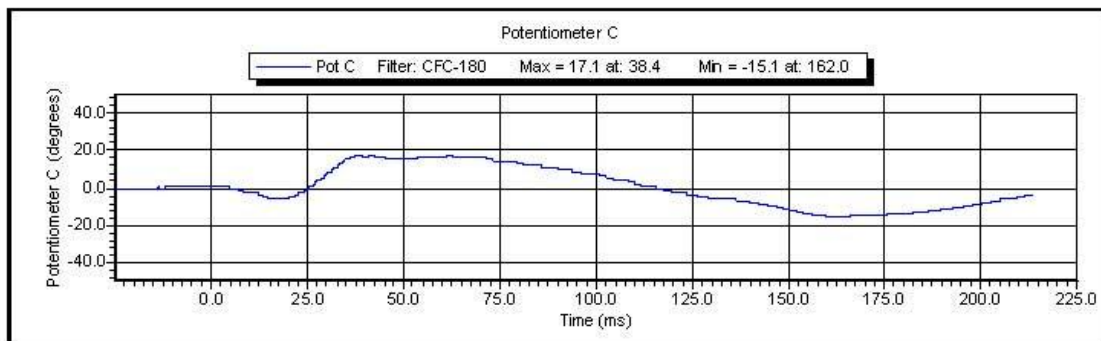
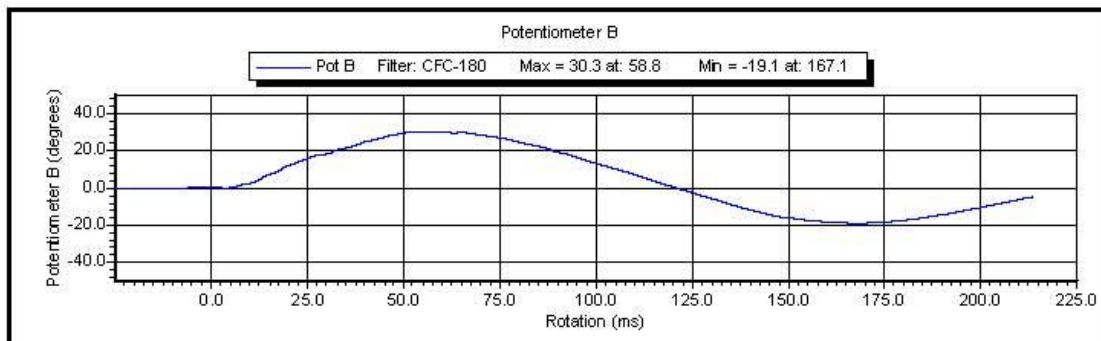
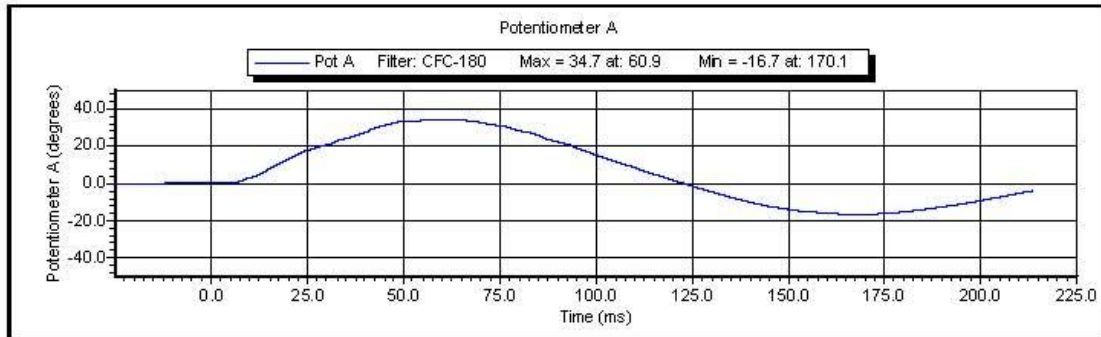
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Test ID:

Test Time: 10:22:01 AM

Test Date: 10/19/2011

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VERIFICATION REPORT

Test Name:	Shoulder Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test Number:	1	Test Date:	10/19/2011
		Test Time:	5:38:24 PM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.0 deg C P
Humidity	10.0 -- 70.0	45.0 %RH P
Velocity	4.20 -- 4.40	4.32 m/s P
Pendulum Acceleration	-10.50 -- -7.50	-9.97 g P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID:

Test Time: **5:38:24 PM**

Test Date: **10/19/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011

Test ID:

Test Time: 5:38:24 PM

Test Date: 10/19/2011

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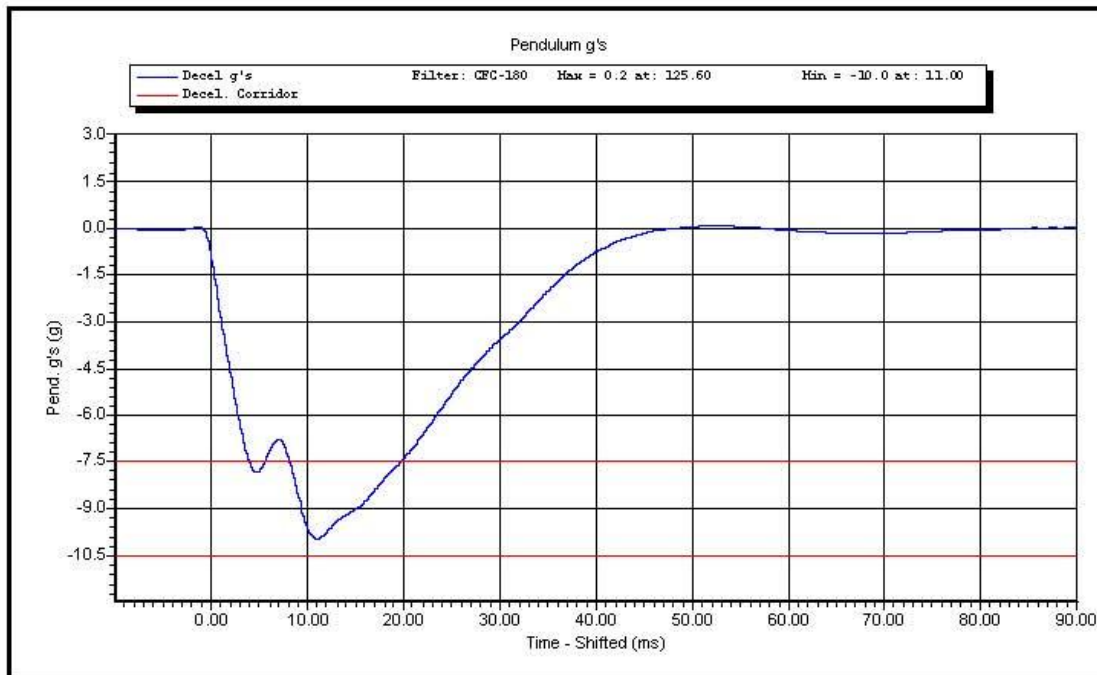


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Test Name:	Shoulder Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/19/2011
Test Number:	1	Test Time:	5:38:24 PM



Test ID:

Test Time: 5:38:24 PM

Test Date: 10/19/2011

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test Number:	1	Test Date:	10/19/2011
		Test Time:	1:42:18 PM

Component Part Number	Component Serial Number
455-3100	UPPER - 07203

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.9 deg C P
Humidity	10.0 -- 70.0	45.0 %RH P
Velocity	3.90 -- 4.10	3.97 m/s P
Rib Displacement	-51.00 -- -46.00	-49.25 mm P
Drop Height	807.0 -- 823.0	815.0 mm P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID: **Upper Rib 4 m/s**

Test Time: **1:42:18 PM**

Test Date: **10/19/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-183	8/31/2011
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P32222	10/14/2011

Test ID: **Upper Rib 4 m/s**

Test Time: **1:42:18 PM**

Test Date: **10/19/2011**

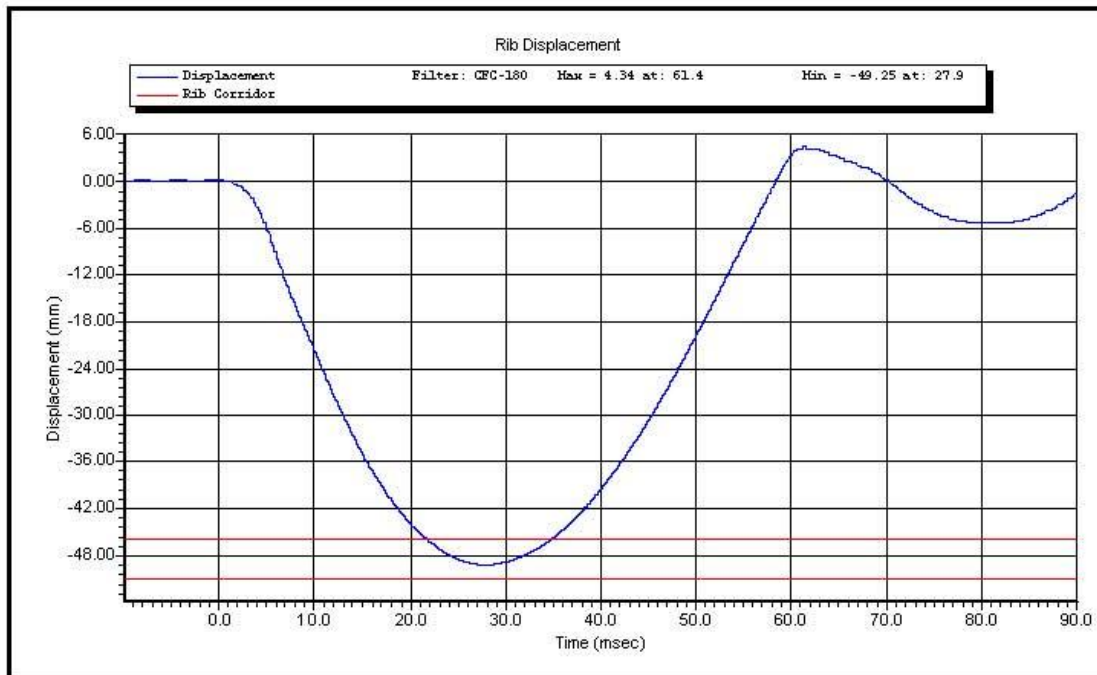


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Upper Rib 4 m/s	Test Date:	10/19/2011
Test Number:	1	Test Time:	1:42:18 PM



Test ID: **Upper Rib 4 m/s** Test Time: **1:42:18 PM**

Test Date: **10/19/2011**

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test Number:	1	Test Date:	10/19/2011
		Test Time:	1:49:49 PM

Component Part Number	Component Serial Number
455-3100	UPPER - 07203

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.9 deg C P
Humidity	10.0 -- 70.0	45.0 %RH P
Velocity	2.90 -- 3.10	2.98 m/s P
Rib Displacement	-40.00 -- -36.00	-38.30 mm P
Drop Height	454 -- 464	459 mm P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID: **Upper Rib 3 m/s**

Test Time: **1:49:49 PM**

Test Date: **10/19/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-183	8/31/2011
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P32222	10/14/2011

Test ID: **Upper Rib 3 m/s**

Test Time: **1:49:49 PM**

Test Date: **10/19/2011**

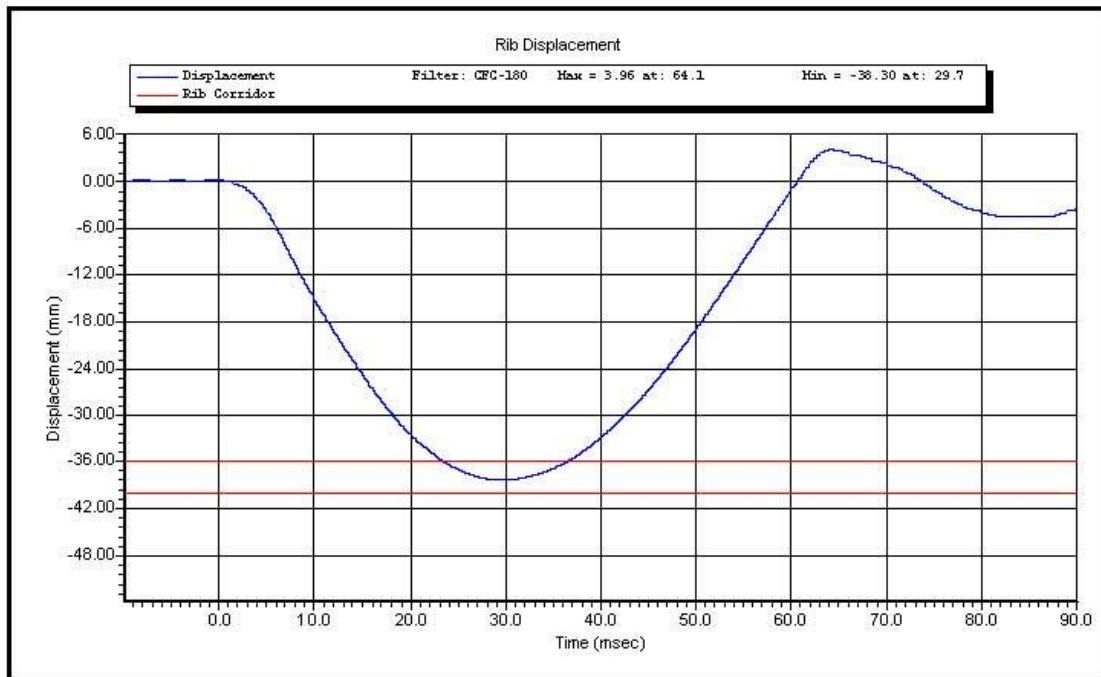


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Upper Rib 3 m/s	Test Date:	10/19/2011
Test Number:	1	Test Time:	1:49:49 PM



Test ID: Upper Rib 3 m/s Test Time: 1:49:49 PM

Test Date: 10/19/2011

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test Number:	1	Test Date:	10/19/2011
		Test Time:	1:56:01 PM

Component Part Number	Component Serial Number
455-3100	MIDDLE - 07205

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.0 deg C P
Humidity	10.0 -- 70.0	45.0 %RH P
Velocity	3.90 -- 4.10	3.96 m/s P
Rib Displacement	-51.00 -- -46.00	-48.32 mm P
Drop Height	807.0 -- 823.0	815.0 mm P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID: **Middle Rib 4 m/s**

Test Time: **1:56:01 PM**

Test Date: **10/19/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-184	8/31/2011
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P32222	10/14/2011

Test ID: **Middle Rib 4 m/s**

Test Time: **1:56:01 PM**

Test Date: **10/19/2011**

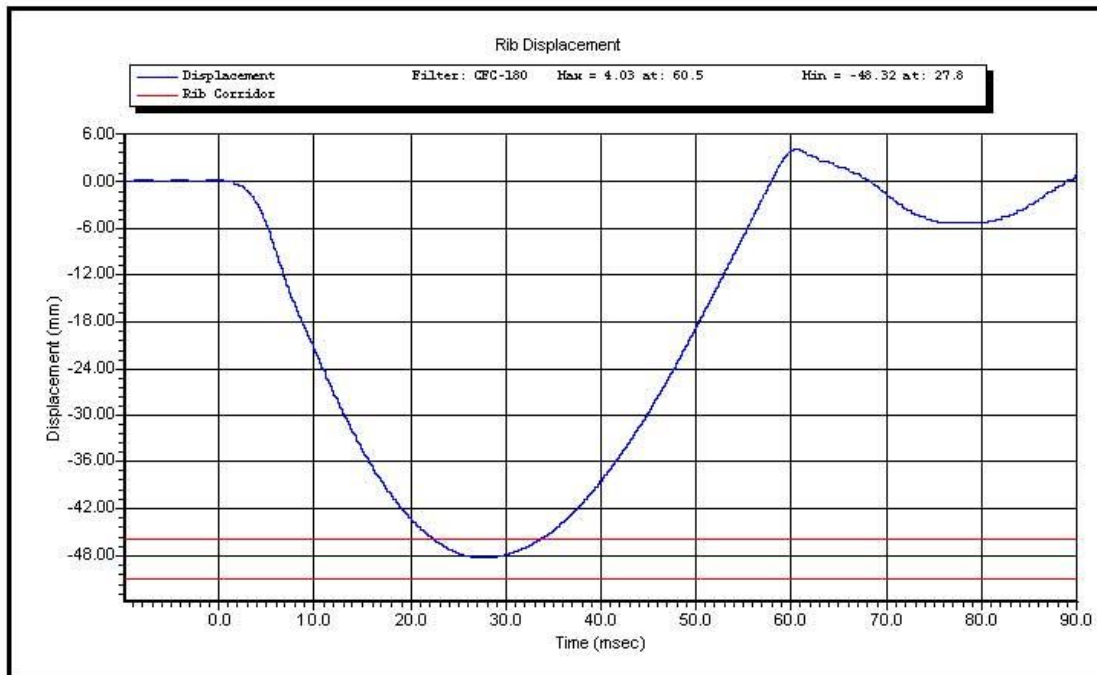


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Middle Rib 4 m/s	Test Date:	10/19/2011
Test Number:	1	Test Time:	1:56:01 PM



Test ID: **Middle Rib 4 m/s** Test Time: **1:56:01 PM**

Test Date: **10/19/2011**

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/4/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test Number:	1	Test Date:	10/19/2011
		Test Time:	2:06:49 PM

Component Part Number	Component Serial Number
455-3100	MIDDLE - 07205

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.0 deg C P
Humidity	10.0 -- 70.0	45.0 %RH P
Velocity	2.90 -- 3.10	2.98 m/s P
Rib Displacement	-40.00 -- -36.00	-37.62 mm P
Drop Height	454 -- 464	459 mm P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID: **Middle Rib 3 m/s**

Test Time: **2:06:49 PM**

Test Date: **10/19/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-184	8/31/2011
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P32222	10/14/2011

Test ID: **Middle Rib 3 m/s**

Test Time: **2:06:49 PM**

Test Date: **10/19/2011**

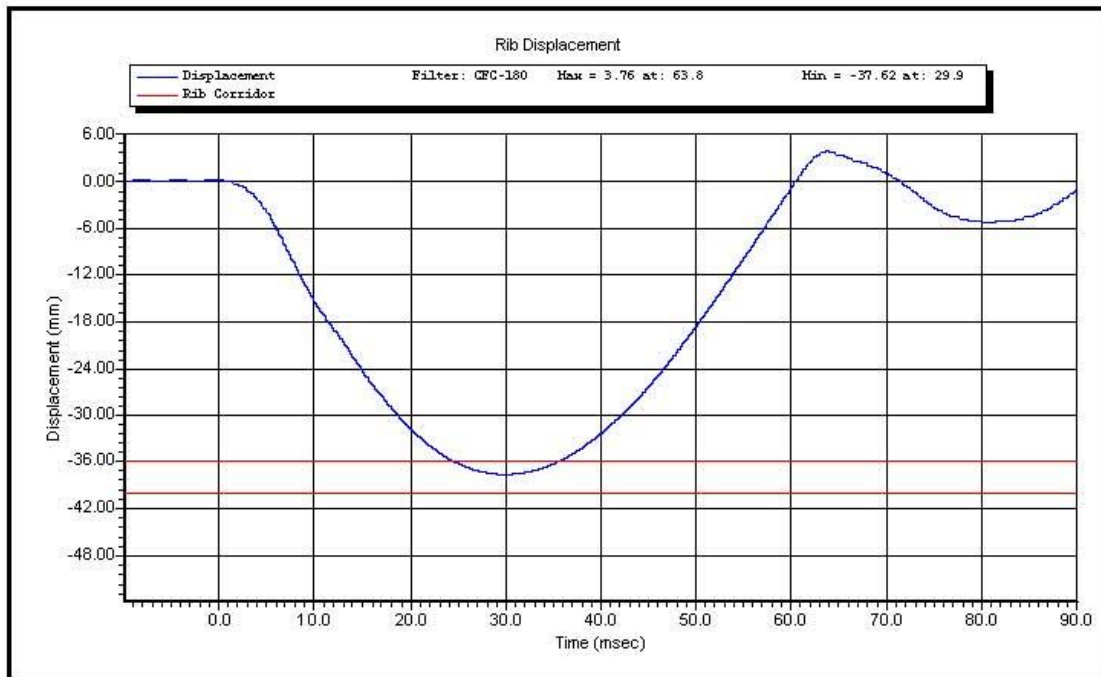


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Middle Rib 3 m/s	Test Date:	10/19/2011
Test Number:	1	Test Time:	2:06:49 PM



Test ID: **Middle Rib 3 m/s** Test Time: **2:06:49 PM**

Test Date: **10/19/2011**

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test Number:	1	Test Date:	10/19/2011
		Test Time:	4:08:19 PM

Component Part Number	Component Serial Number
455-3100	LOWER - 07209

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.0 deg C P
Humidity	10.0 -- 70.0	45.0 %RH P
Velocity	3.90 -- 4.10	3.95 m/s P
Rib Displacement	-51.00 -- -46.00	-48.94 mm P
Drop Height	807.0 -- 823.0	815.0 mm P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID: **Lower Rib 4 m/s**

Test Time: **4:08:19 PM**

Test Date: **10/19/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-182	8/31/2011
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P32222	10/14/2011

Test ID: **Lower Rib 4 m/s**

Test Time: **4:08:19 PM**

Test Date: **10/19/2011**

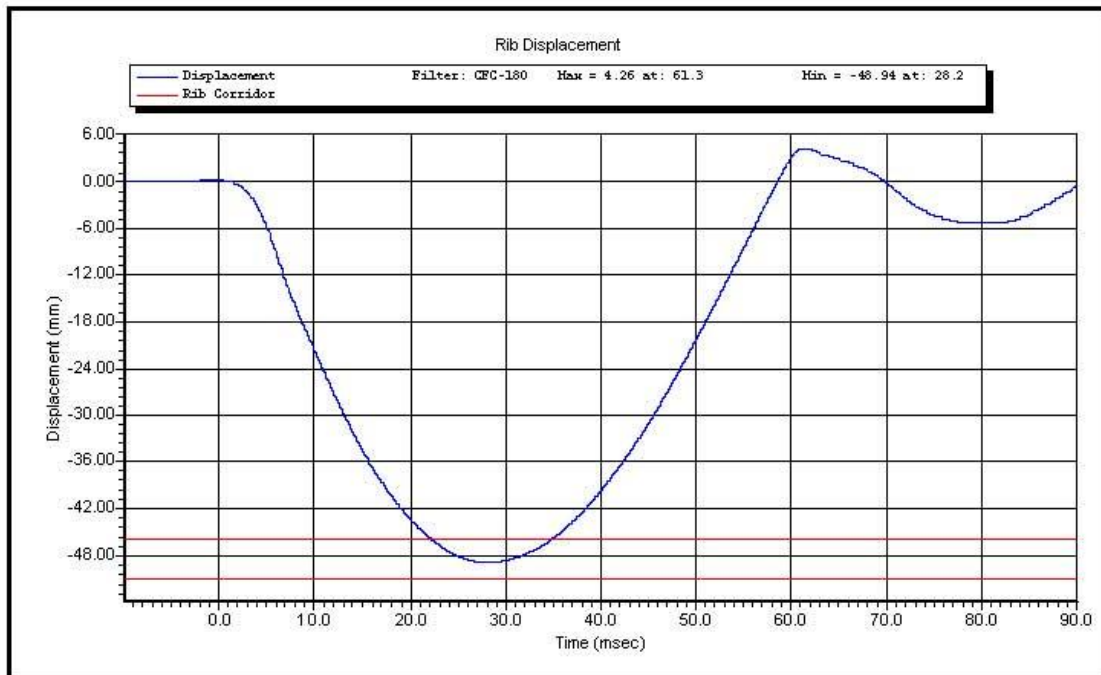


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Lower Rib 4 m/s	Test Date:	10/19/2011
Test Number:	1	Test Time:	4:08:19 PM



Test ID: Lower Rib 4 m/s Test Time: 4:08:19 PM

Test Date: 10/19/2011

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test Number:	1	Test Date:	10/19/2011
		Test Time:	4:20:07 PM

Component Part Number	Component Serial Number
455-3100	LOWER - 07209

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.0 deg C P
Humidity	10.0 -- 70.0	45.0 %RH P
Velocity	2.90 -- 3.10	2.97 m/s P
Rib Displacement	-40.00 -- -36.00	-37.82 mm P
Drop Height	454 -- 464	459 mm P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID: **Lower Rib 3 m/s**

Test Time: **4:20:07 PM**

Test Date: **10/19/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT 38000	DS-182	8/31/2011
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P32222	10/14/2011

Test ID: **Lower Rib 3 m/s**

Test Time: **4:20:07 PM**

Test Date: **10/19/2011**

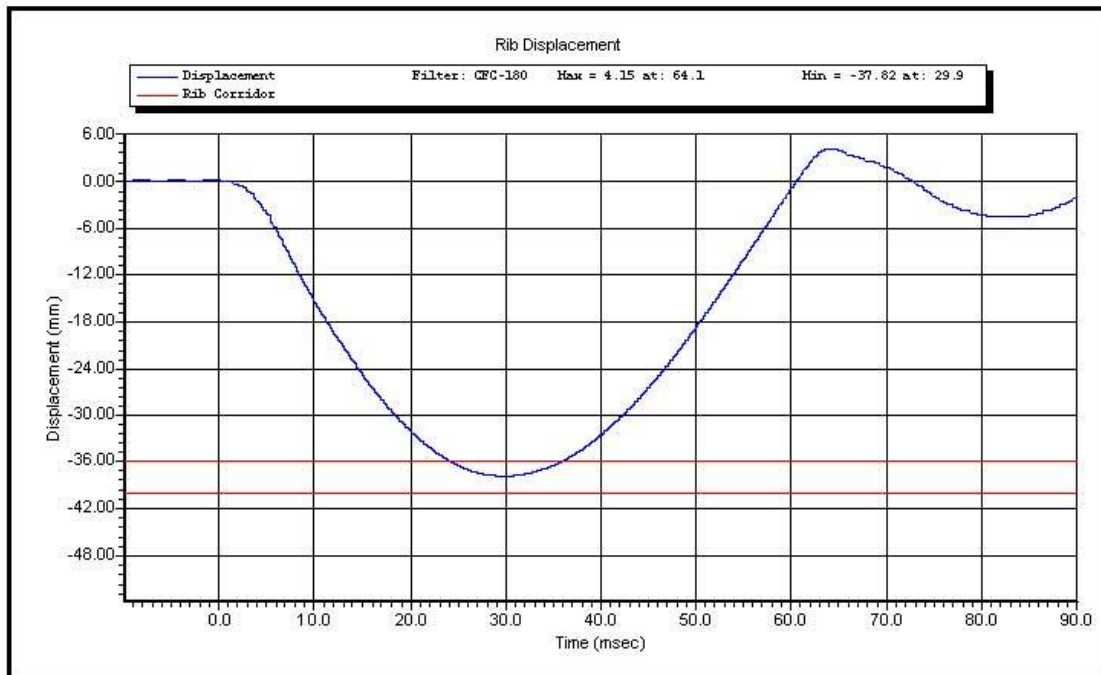


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Lower Rib 3 m/s	Test Date:	10/19/2011
Test Number:	1	Test Time:	4:20:07 PM



Test ID: **Lower Rib 3 m/s** Test Time: **4:20:07 PM**

Test Date: **10/19/2011**

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VERIFICATION REPORT

Test Name:	Thorax Impact	Revision:	8/15/2008
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test Number:	1	Test Date:	10/19/2011
		Test Time:	6:38:07 PM

Component Part Number	Component Serial Number
Upper Rib - 175-4002	UPPER - 07203
Middle Rib - 175-4002	MIDDLE - 07205
Lower Rib - 175-4002	LOWER - 07209

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.8 deg C P
Humidity	10.0 -- 70.0	46.0 %RH P
Velocity	5.40 -- 5.60	5.50 m/s P
Upper Rib Displacement	34.0 -- 41.0	38.2 mm P
Middle Rib Displacement	37.0 -- 45.0	42.1 mm P
Lower Rib Displacement	37.0 -- 44.0	41.5 mm P
Impactor Force	5100 -- 6200	5681 N P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **6:38:07 PM**

Test Date: **10/19/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
Honeywell	MLT 38000	DS-183	8/31/2011
Honeywell	MLT 38000	DS-184	8/31/2011
Honeywell	MLT 38000	DS-182	8/31/2011

Test ID:

Test Time: **6:38:07 PM**

Test Date: **10/19/2011**

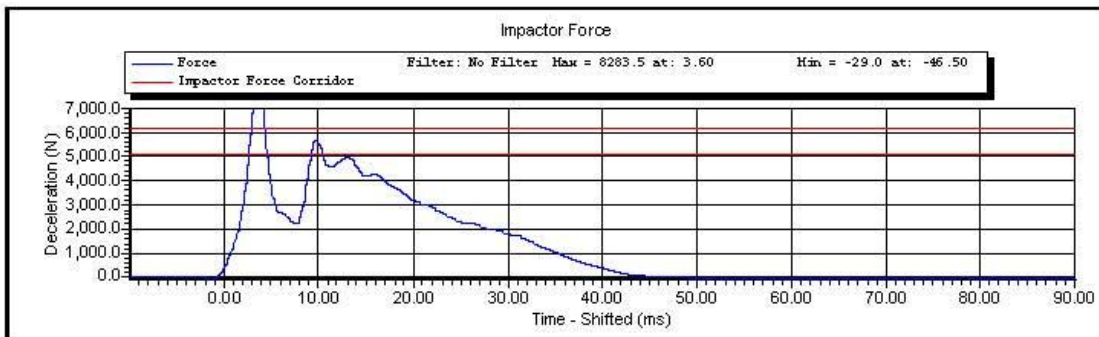
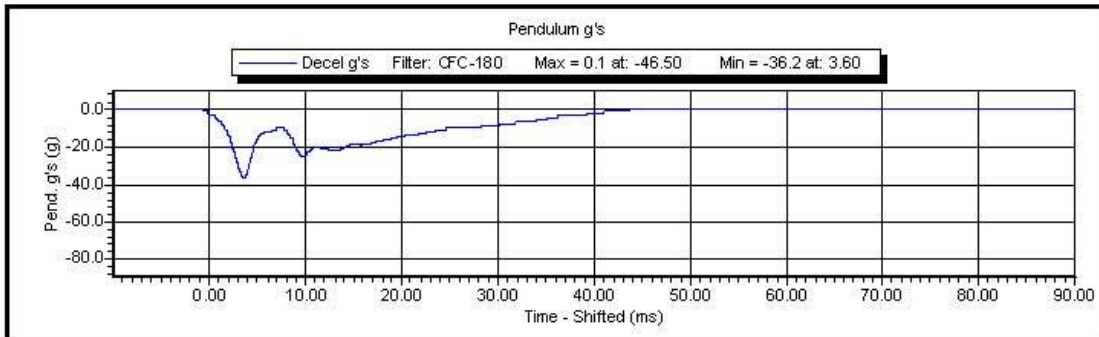


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Test Name:	Thorax Impact	Revision:	8/15/2008
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/19/2011
Test Number:	1	Test Time:	6:38:07 PM



Test ID:

Test Time: 6:38:07 PM

Test Date: 10/19/2011

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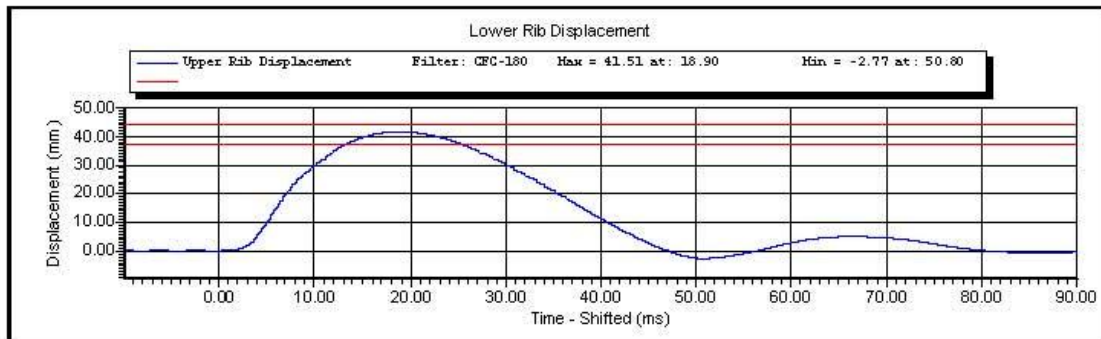
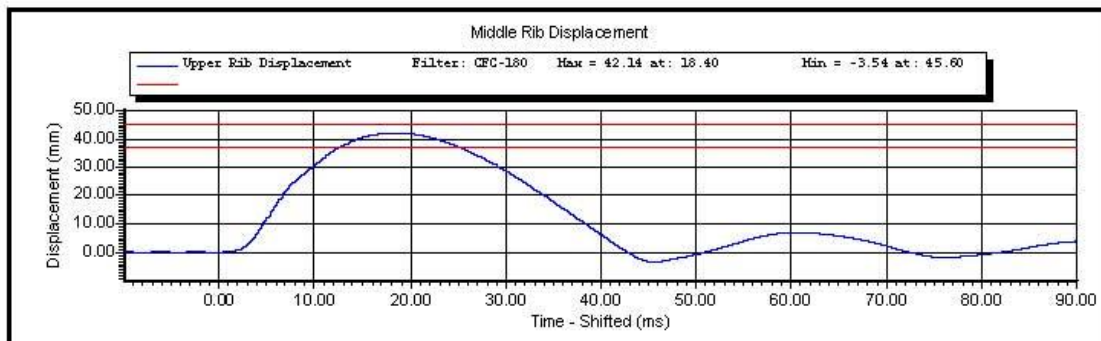
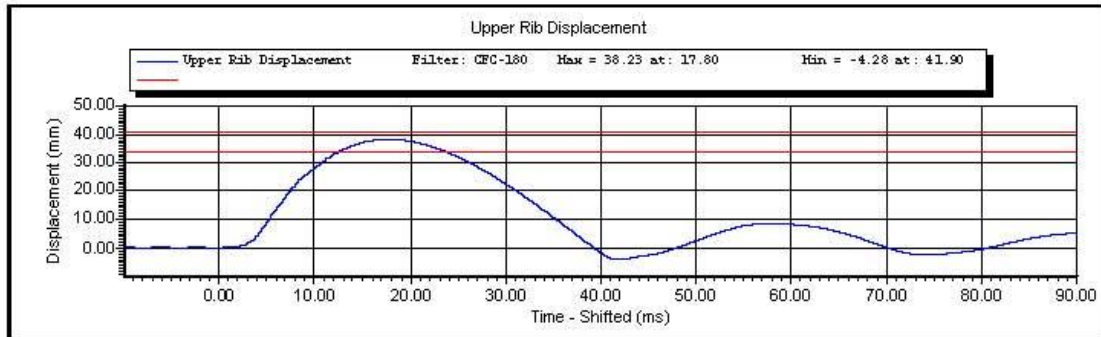
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Test ID:

Test Time: 6:38:07 PM

Test Date: 10/19/2011

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VERIFICATION REPORT

Test Name:	Abdominal Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test Number:	1	Test Date:	10/19/2011
		Test Time:	6:05:19 PM

Component Part Number	Component Serial Number
455-4001 Abdomen Insert	0791

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.9 deg C P
Humidity	10 -- 70	45 %RH P
Velocity	3.90 -- 4.10	4.04 m/s P
Peak Abdominal Force	-2.70 -- -2.20	-2.47 kN P
Time At Peak Abdominal Force	10.0 -- 12.3	10.6 ms P
Maximum Pendulum Force	-4.80 -- -4.00	-4.36 kN P
Time at Peak Pendulum Force	10.6 -- 13.0	11.4 ms P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **6:05:19 PM**

Test Date: **10/19/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
Denton	2631	LC-1512	3/25/2011
Denton	2631	LC-1526	3/25/2011
Denton	2631	LC-1516	3/25/2011

Test ID:

Test Time: 6:05:19 PM

Test Date: 10/19/2011

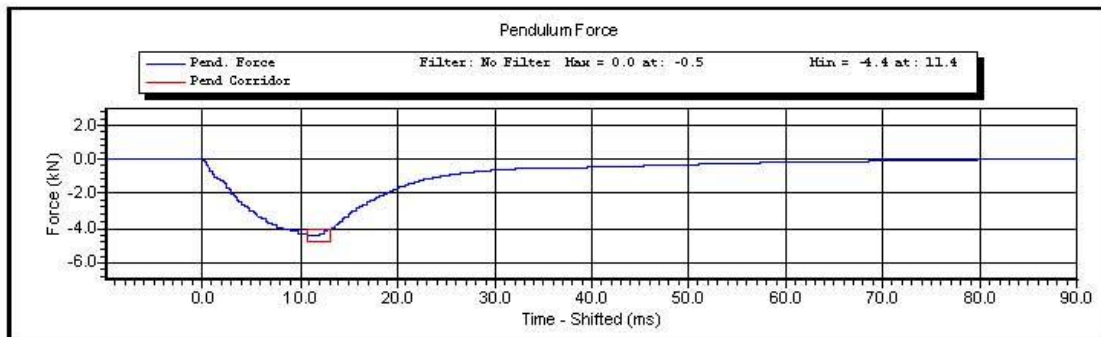
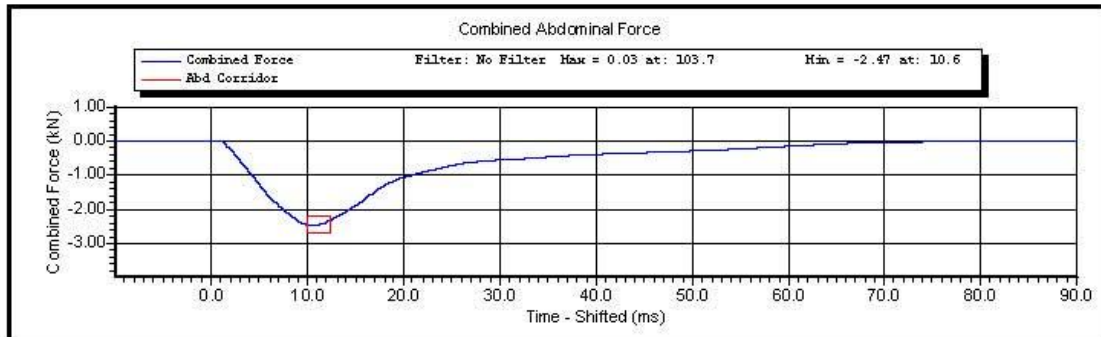


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Test Name:	Abdominal Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/19/2011
Test Number:	1	Test Time:	6:05:19 PM



Test ID:

Test Time: 6:05:19 PM

Test Date: 10/19/2011

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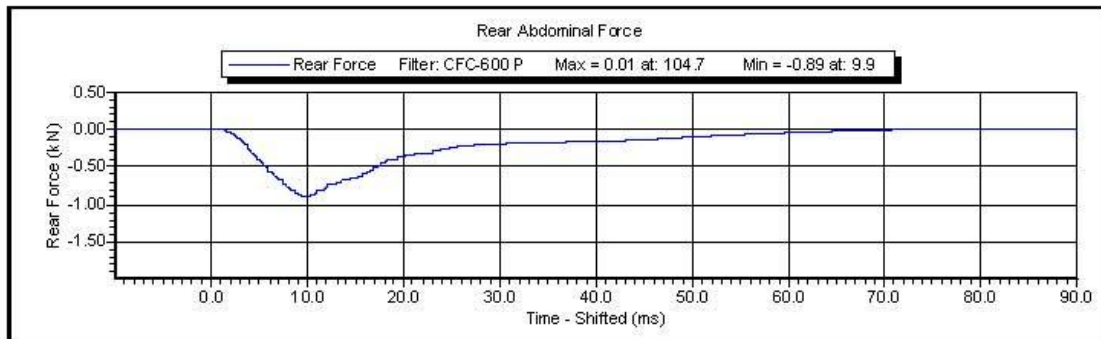
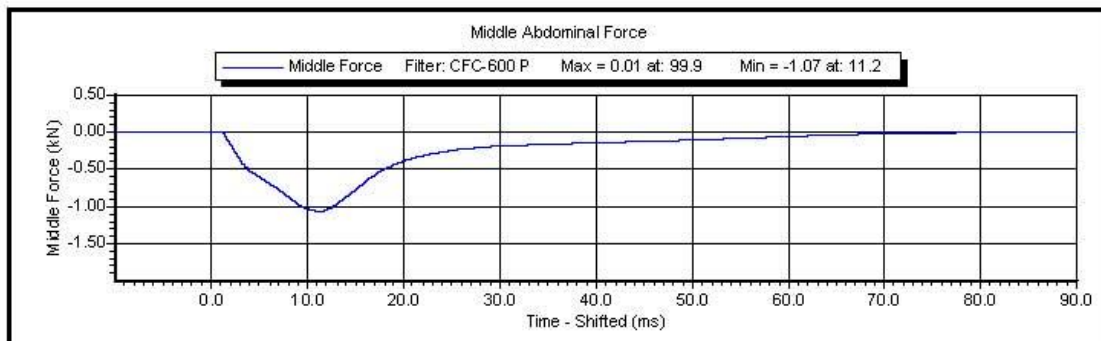
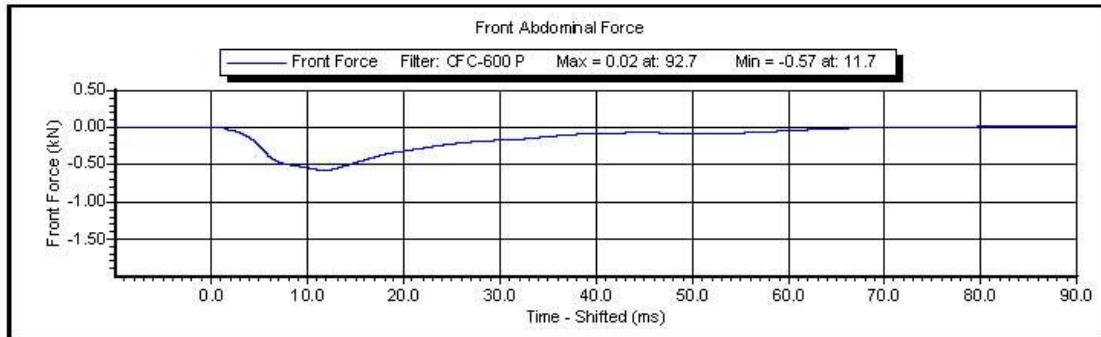
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Test ID:

Test Time: 6:05:19 PM

Test Date: 10/19/2011

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VERIFICATION REPORT

Test Name:	Pelvis Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test Number:	1	Test Date:	10/19/2011
		Test Time:	5:05:58 PM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.0 deg C P
Humidity	10 -- 70	46 %RH P
Velocity	4.20 -- 4.40	4.31 m/s P
Peak Pendulum Force	-5.40 -- -4.70	-4.92 kN P
Time at Peak Pendulum Force	11.80 -- 16.10	14.09 ms P
Peak Pubic Symphysis Force	-1.59 -- -1.23	-1.35 kN P
Time at Peak Pubic Symphysis Force	12.20 -- 17.00	15.49 ms P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **5:05:58 PM**

Test Date: **10/19/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
Denton	3096	LC-465Fy	8/31/2011

Test ID:

Test Time: 5:05:58 PM

Test Date: 10/19/2011

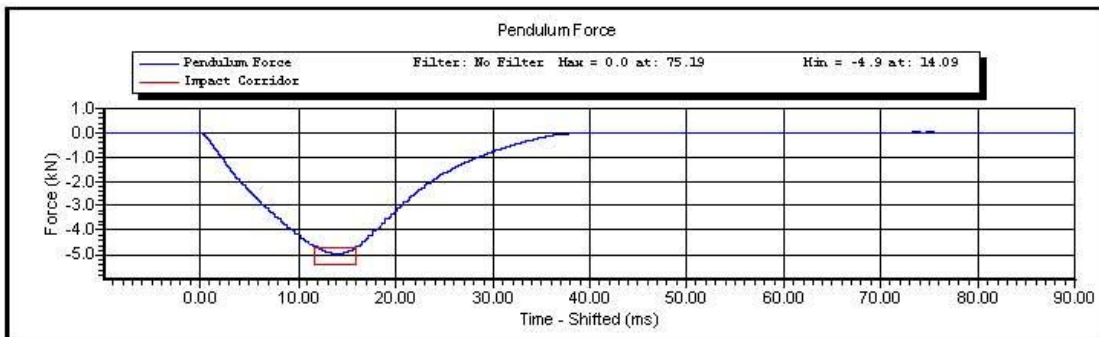
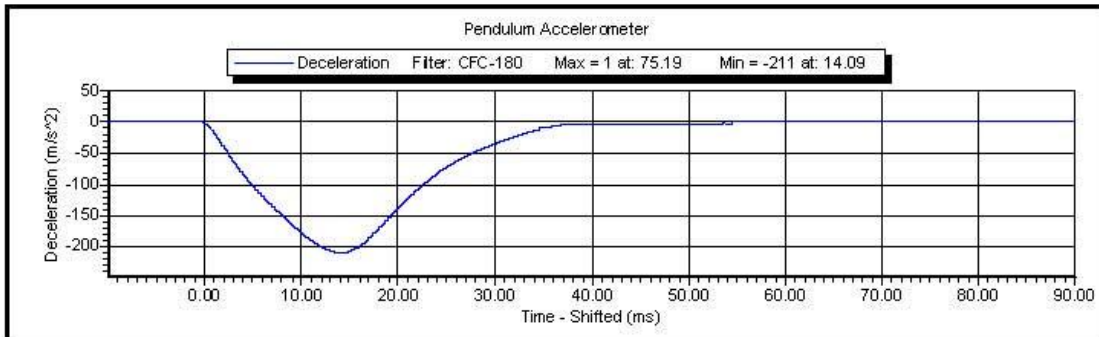


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Test Name:	Pelvis Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/19/2011
Test Number:	1	Test Time:	5:05:58 PM



Test ID:

Test Time: **5:05:58 PM**

Test Date: **10/19/2011**

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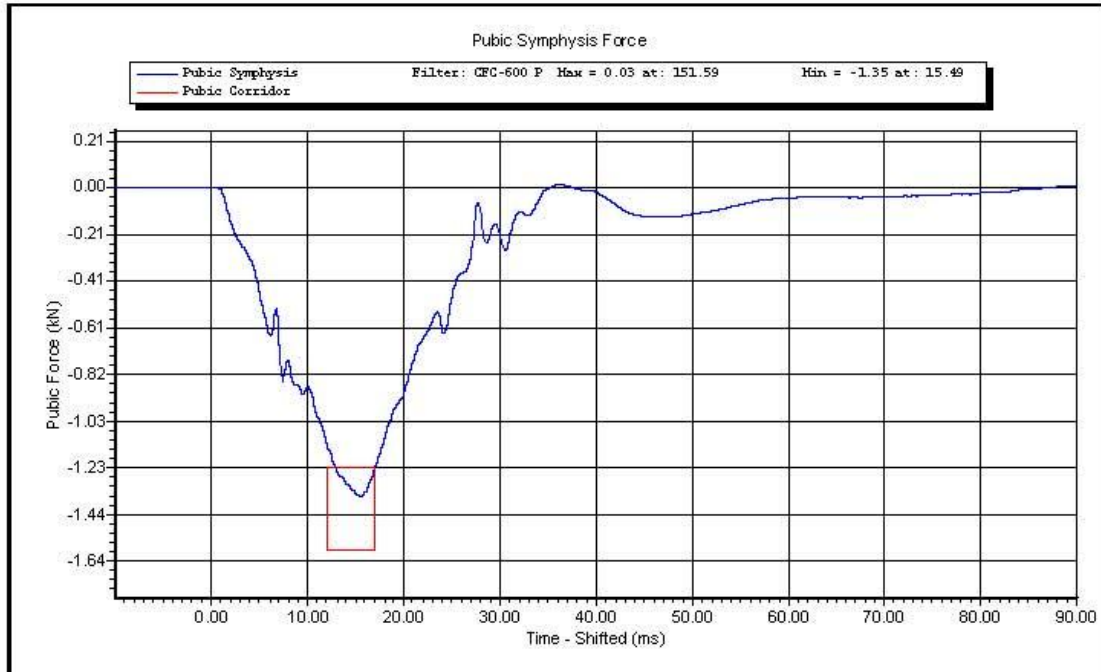
1 of 2



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Test ID:

Test Time: 5:05:58 PM

Test Date: 10/19/2011

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VERIFICATION REPORT

Test Name:	Lumbar Spine	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test Number:	2	Test Date:	10/19/2011
		Test Time:	12:14:01 PM

Component Part Number	Component Serial Number
175-5501 Lumbar Spine	15050329A

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.8 deg C P
Humidity	10 -- 70	45 %RH P
Velocity	5.95 -- 6.15	6.14 m/s P
Maximum Headform Flexion Angle	45.0 -- 55.0	47.5 degrees P
Time at Maximum Headform Flexion Angle	39.0 -- 53.0	44.8 ms P
Decay to Zero Degrees	37.0 -- 57.0	37.2 ms P
Velocity Corridor	--	P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **12:14:01 PM**

Test Date: **10/19/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	C16510	10/3/2011
DentonATD	7000428	094	4/25/2011
DentonATD	7000428	095	4/25/2011
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Test ID:

Test Time: 12:14:01 PM

Test Date: 10/19/2011

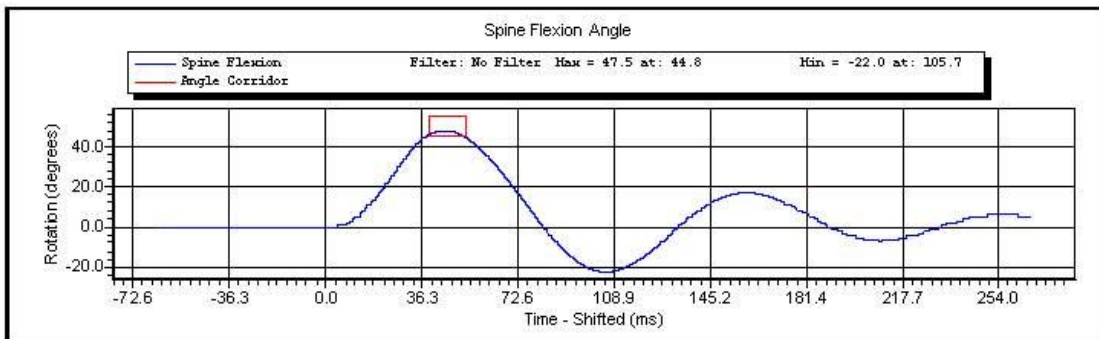
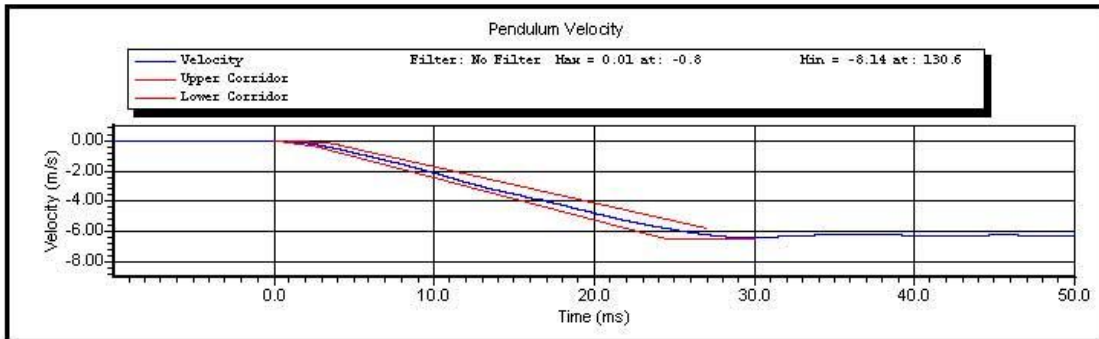


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Test Name:	Lumbar Spine	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/19/2011
Test Number:	2	Test Time:	12:14:01 PM



Test ID:

Test Time: **12:14:01 PM**

Test Date: **10/19/2011**

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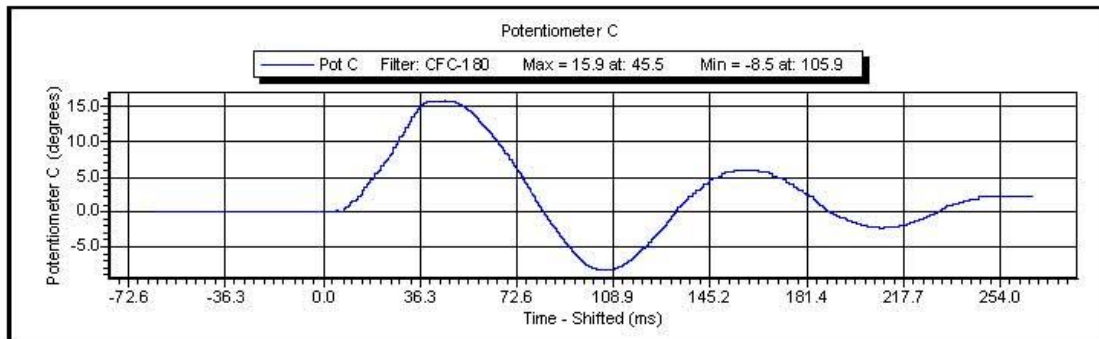
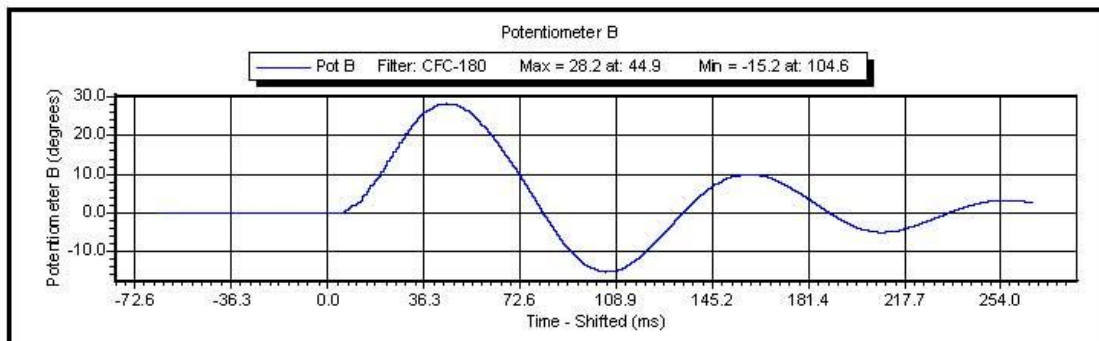
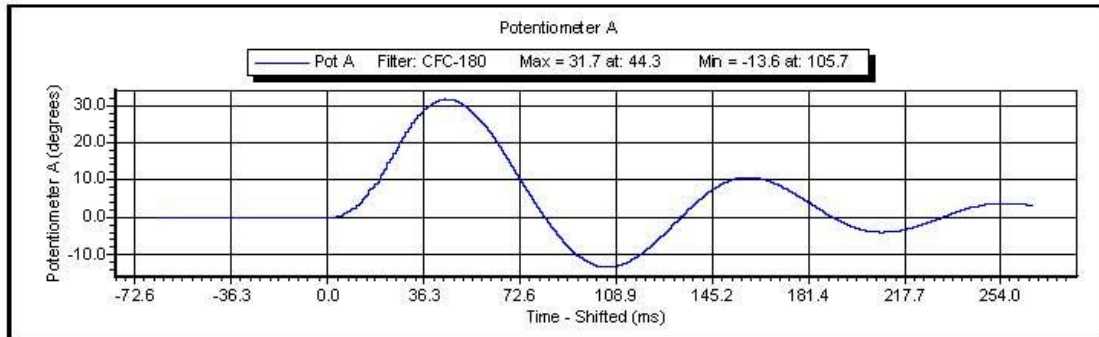
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Test ID:

Test Time: 12:14:01 PM

Test Date: 10/19/2011

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CALIBRATION TEST RESULTS

POST-TEST

SID-IIs No: 8012

CONFIGURED FOR LEFT SIDE IMPACT



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SID-IIsD External Measurements

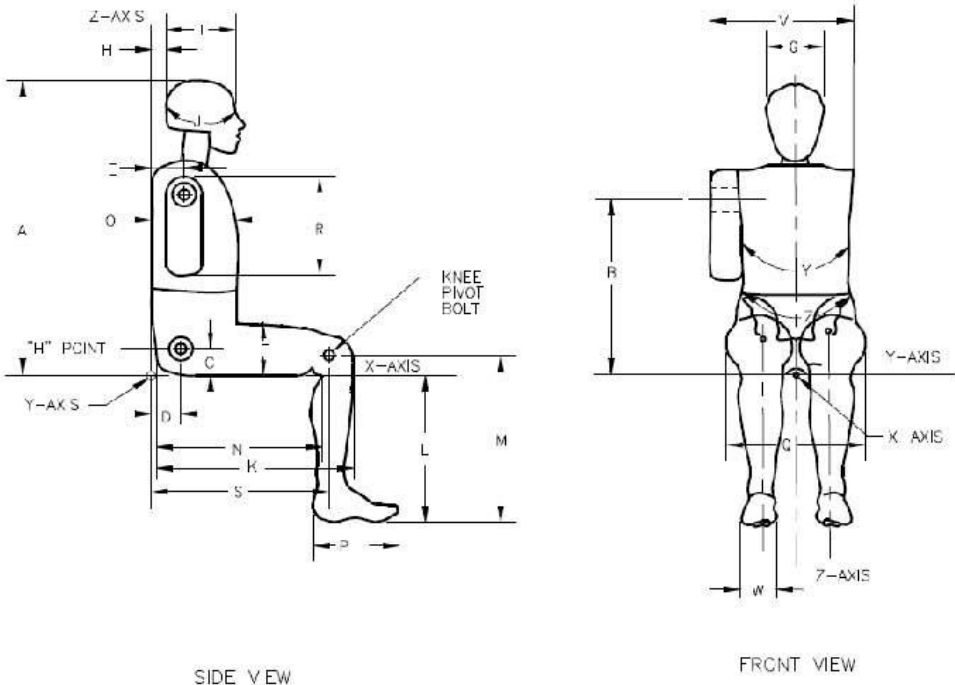
NHTSA ATD S/N DG8012

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	784	Yes
B	Shoulder Pivot Height	437.0 - 453.0	444	Yes
C	H-Point Height	79.0 - 89.0	85	Yes
D	H-Point from Seat Back	141.0 - 151.0	148	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	100	Yes
F	Thigh Clearance	119.0 - 135.0	132	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	43	Yes
I	Head Depth	178.0 - 188.0	187	Yes
J	Head Circumference	541.0 - 551.0	548	Yes
K	Buttock to Knee Length	514.0 - 540.0	530	Yes
L	Popliteal Height	343.0 - 369.0	359	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	402	Yes
N	Buttock Popliteal Length	416.0 - 442.0	434	Yes
O	Chest Depth without Jacket	195.0 - 211.0	204	Yes
P	Foot Length (right)	216.0 - 232.0	223	Yes
Q	Hip Breadth	313.0 - 323.0	315	Yes
R	Arm Length	249.0 - 259.0	257	Yes
S	Knee Joint to Seat back	478.0 - 493.0	490	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	354	Yes
W	Foot Width (right)	78.0 - 94.0	84	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	870	Yes
Z	Waist Circumference	761.0 - 791.0	782	Yes

Technician : AR

Date: 10/18/2011

SID-IIIsD External Dimension Reference Diagram





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VERIFICATION REPORT

Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test Number:	1	Test Date:	10/18/2011
		Test Time:	8:05:26 PM

Component Part Number	Component Serial Number
Head Skin - 180-1002	1362

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.9 deg C P
Humidity	10 -- 70	39 %RH P
Resultant Acceleration	115.0 -- 137.0	122.3 g P
Oscillation	0.0 -- 15.0	2.5 % P
Fore-Aft Acceleration	-15.0 -- 15.0	6.3 g P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID:

Test Time: **8:05:26 PM**

Test Date: **10/18/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Endevco	7264-2000	P51885	10/17/2011
Endevco	7264-2000	P58839	10/17/2011
Endevco	7264-2000	P51991	10/17/2011

Test ID:

Test Time: 8:05:26 PM

Test Date: 10/18/2011

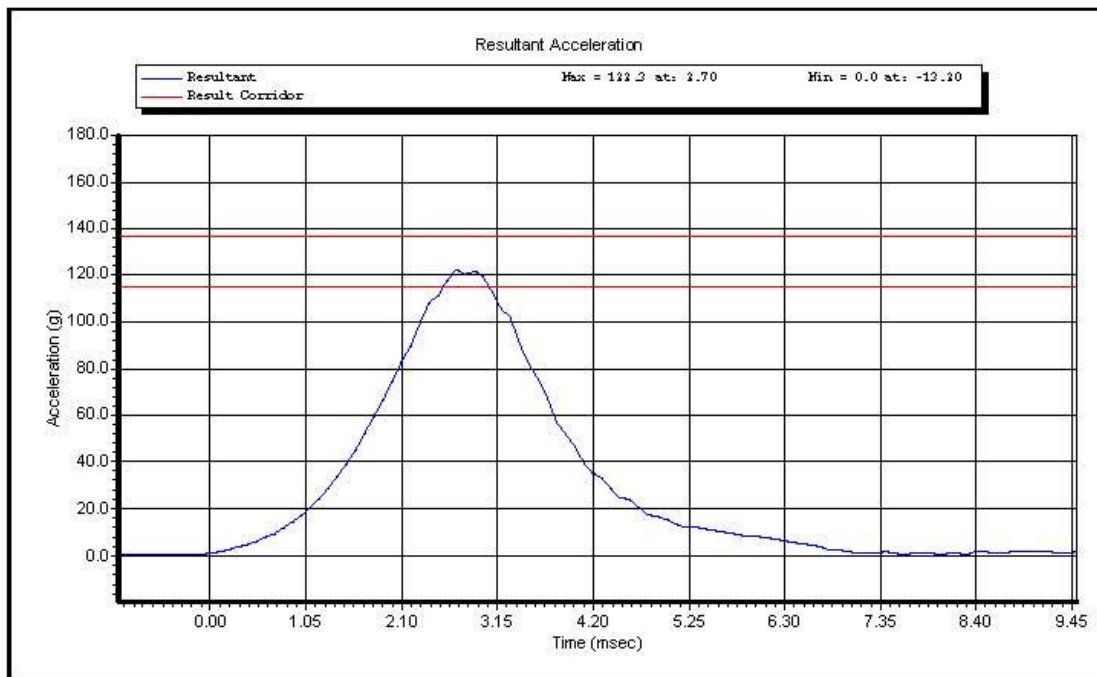


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Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/18/2011
Test Number:	1	Test Time:	8:05:26 PM



Test ID:

Test Time: 8:05:26 PM

Test Date: 10/18/2011

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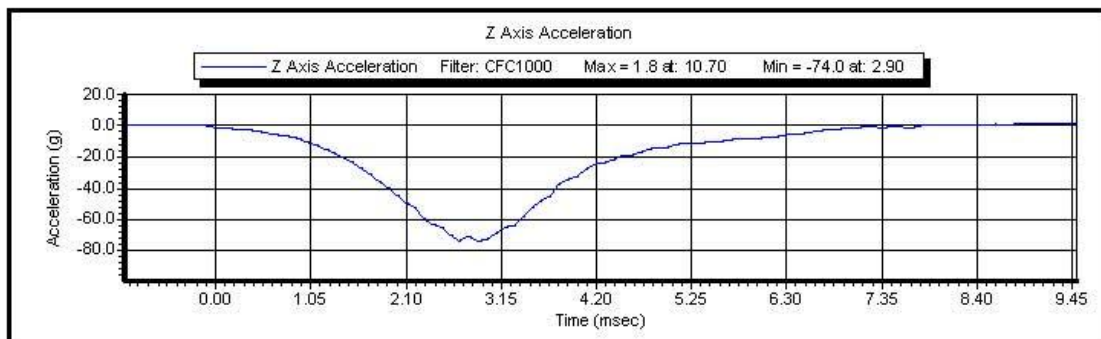
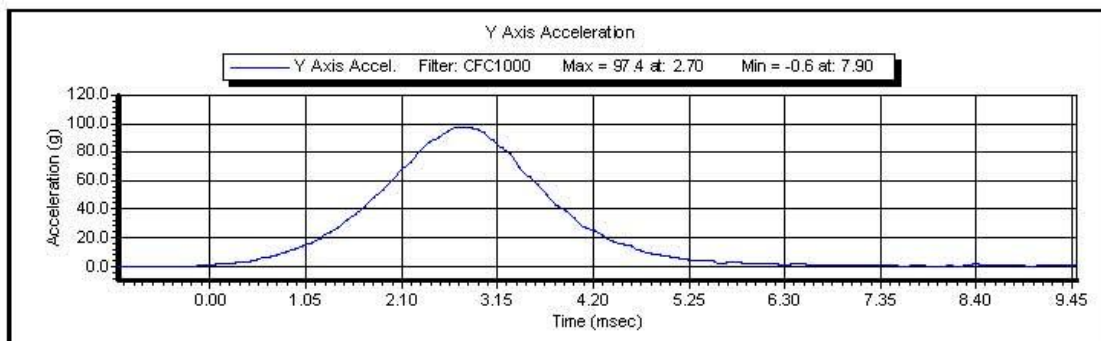
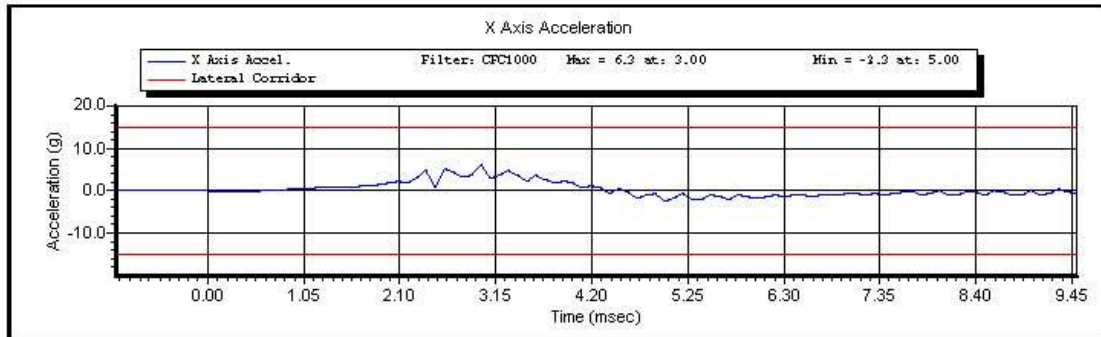
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Test Time: 8:05:26 PM

Test Date: 10/18/2011

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VERIFICATION REPORT

Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test Number:	1	Test Date:	10/18/2011
		Test Time:	7:44:45 PM

Component Part Number	Component Serial Number
Neck - 180-2000	DG7061

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.8 deg C P
Humidity	10 -- 70	40 %RH P
Velocity	5.51 -- 5.63	5.56 m/s P
Pendulum Impulse at 10 ms	2.20 -- 2.80	2.35 m/s P
Pendulum Impulse at 15 ms	3.30 -- 4.10	3.38 m/s P
Pendulum Impulse at 20 ms	4.40 -- 5.40	4.56 m/s P
Pendulum Impulse at 25 ms	5.40 -- 6.10	5.41 m/s P
Pendulum Impulse between 25 and 100 ms	5.50 -- 6.20	5.76 m/s P
Max D Plane Rotation	71.0 -- 81.0	77.4 degrees P
Time at Max Rotation	50.0 -- 70.0	62.8 ms P
Moment about OC	-44.0 -- -36.0	-39.1 Nm P
Moment Decay to Zero	102.0 -- 126.0	117.5 ms P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **7:44:45 PM**

Test Date: **10/18/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	C16510	10/3/2011
Denton	1716A	LC-2192Fy	8/31/2011
Denton	1716A	LC-2192Mx	8/31/2011
DentonATD	78051-342	184	5/8/2011
DentonATD	78051-342	174	5/8/2011
DentonATD	78051-342	185	5/8/2011

Test ID:

Test Time: 7:44:45 PM

Test Date: 10/18/2011

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2 of 2

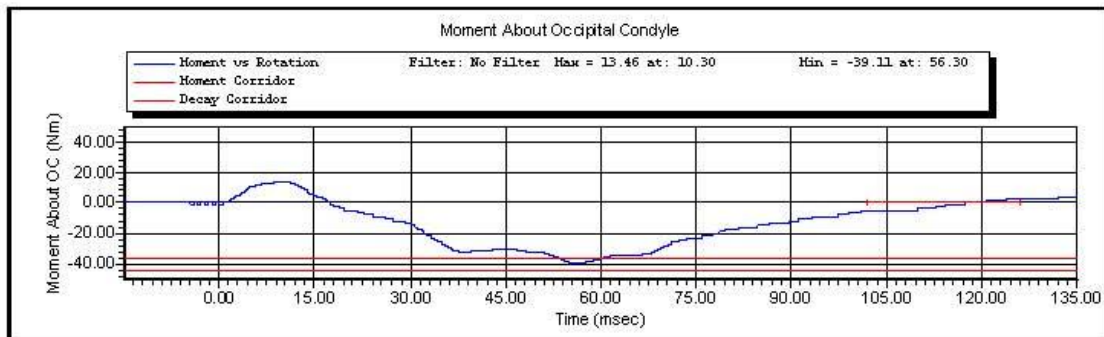
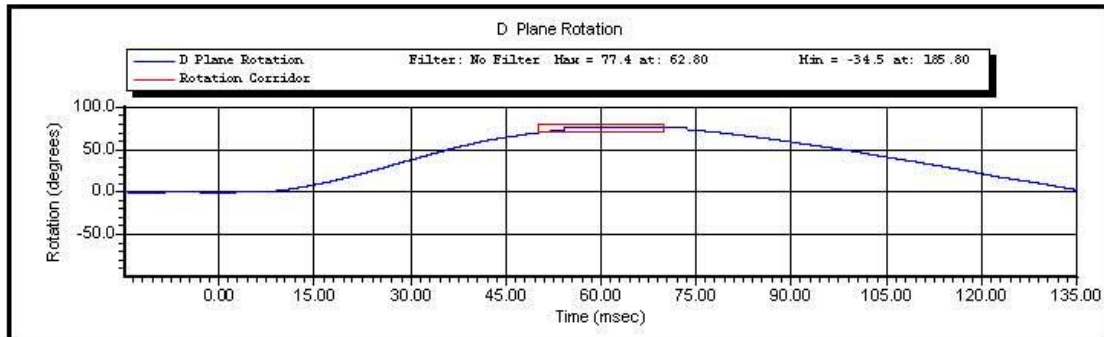


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Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/18/2011
Test Number:	1	Test Time:	7:44:45 PM



Test ID:

Test Time: 7:44:45 PM

Test Date: 10/18/2011

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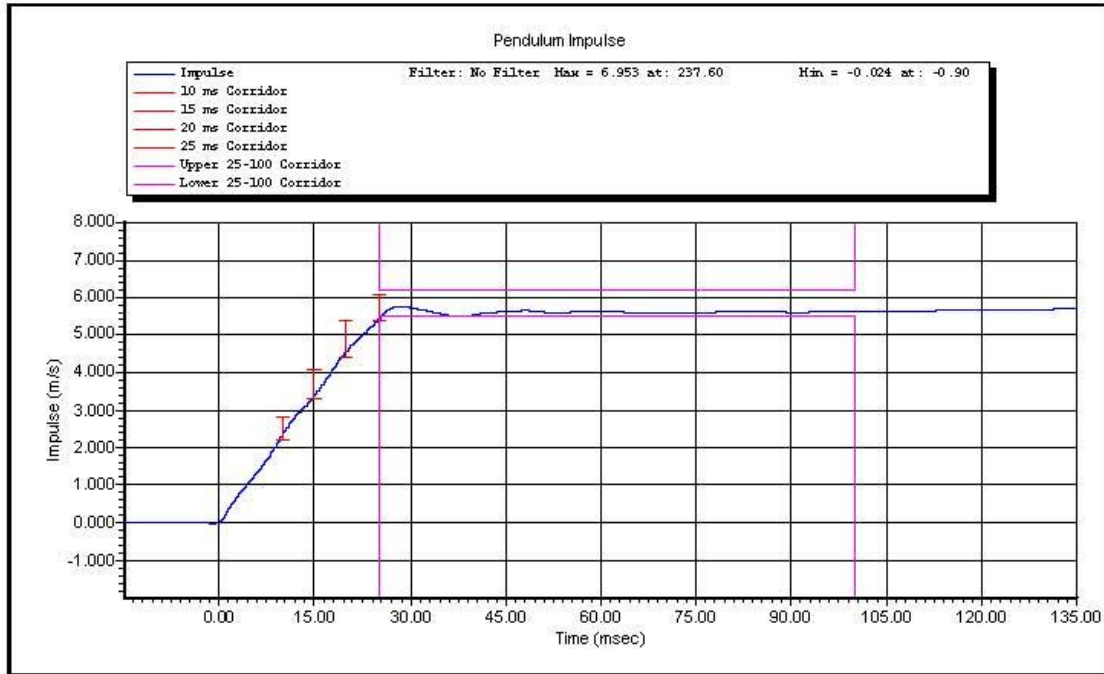
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Test Time: 7:44:45 PM

Test Date: 10/18/2011

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VERIFICATION REPORT

Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test Number:	1	Test Date:	10/18/2011
		Test Time:	5:06:53 PM

Component Part Number	Component Serial Number
Left Arm 180-6011-1	DG3210
Shoulder Rib 180-3355	DG6997
Shoulder Plug 180-6019	

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.90 deg C P
Humidity	10.0 -- 70.0	39.0 %RH P
Velocity	4.20 -- 4.40	4.32 m/s P
Probe Acceleration	13.0 -- 18.0	14.9 g P
Shoulder Deflection	28.0 -- 37.0	30.2 mm P
T1 Acceleration	17.0 -- 22.0	19.0 g P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **5:06:53 PM**

Test Date: **10/18/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
FTSS	180-3881-1	DS-1845	9/1/2011
Endevco	7264-2000	P63561	10/3/2011

Test ID:

Test Time: 5:06:53 PM

Test Date: 10/18/2011

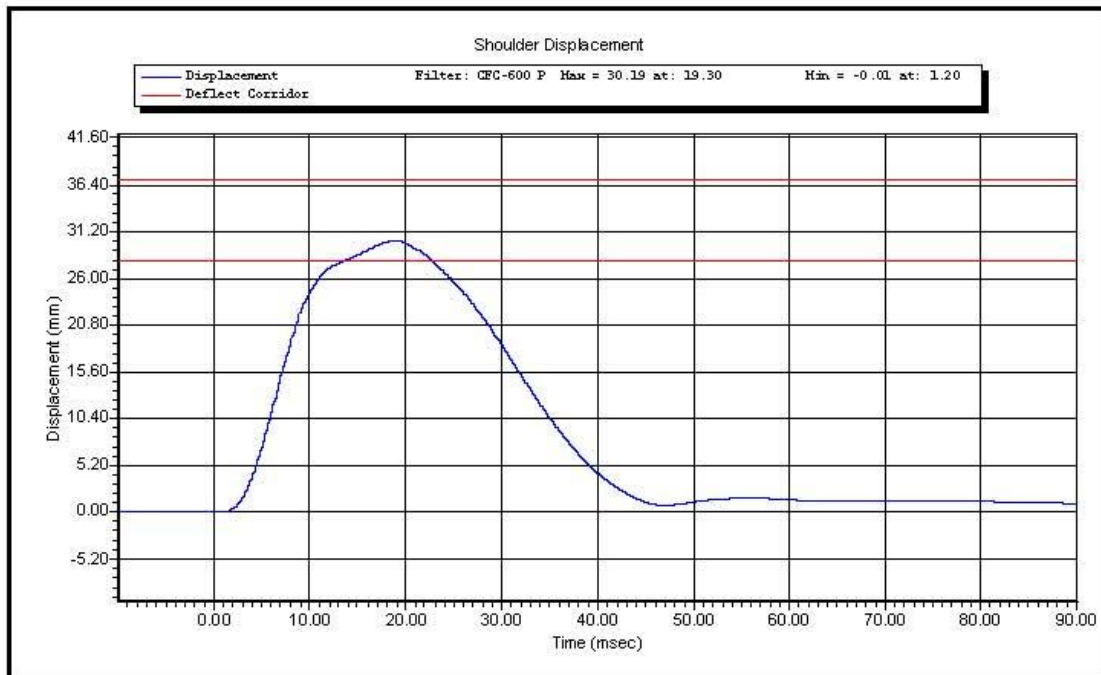


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Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/18/2011
Test Number:	1	Test Time:	5:06:53 PM



Test ID:

Test Time: 5:06:53 PM

Test Date: 10/18/2011

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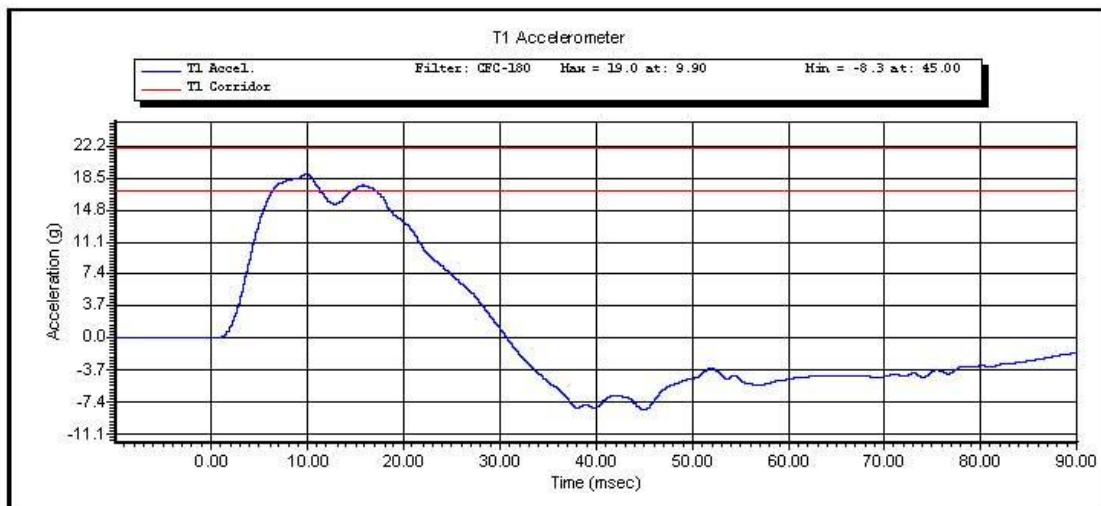
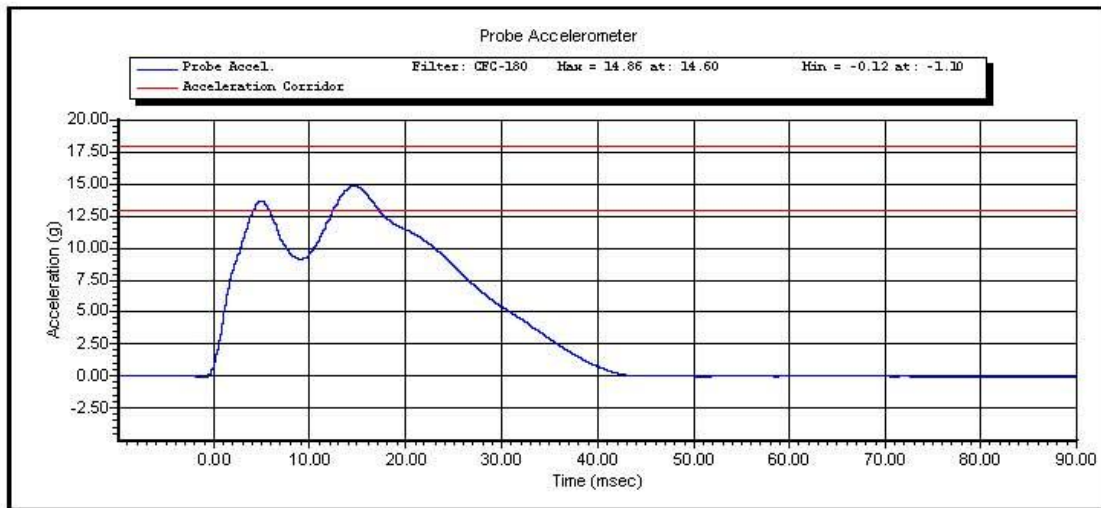
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Test Date: 10/18/2011

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VERIFICATION REPORT

Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test Number:	1	Test Date:	10/18/2011
		Test Time:	6:28:48 PM

Component Part Number	Component Serial Number
Thorax Ribs 1, 2, 3 180-3362	DG6080, DG6081, DG7543
Shoulder Rib 180-3355	DG6997
Left Arm 180-6011-1	DG3210

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.8 deg C P
Humidity	10 -- 70	40 %RH P
Velocity	6.60 -- 6.80	6.69 m/s P
Probe Acceleration after 5ms	30.0 -- 36.0	33.0 g P
Upper Thorax Rib Deflection	25.0 -- 32.0	28.0 mm P
Mid Thorax Rib Deflection	30.0 -- 36.0	32.8 mm P
Lower Thorax Rib Deflection	32.0 -- 38.0	35.2 mm P
Upper Spine Acceleration ("y")	34.0 -- 43.0	38.4 g P
Lower Spine Acceleration ("y")	29.0 -- 37.0	34.0 g P
Shoulder Deflection	31.0 -- 40.0	34.2 mm P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **6:28:48 PM**

Test Date: **10/18/2011**



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REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
FTSS	180-3881-1	DS-1849	9/1/2011
FTSS	180-3881-1	DS-1857	9/1/2011
FTSS	180-3881-1	DS-1859	9/1/2011
Endevco	7264-2000	P63561	10/3/2011
Endevco	7264-2000	P58796	10/5/2011
FTSS	180-3881-1	DS-1845	9/1/2011

Test ID:

Test Time: 6:28:48 PM

Test Date: 10/18/2011

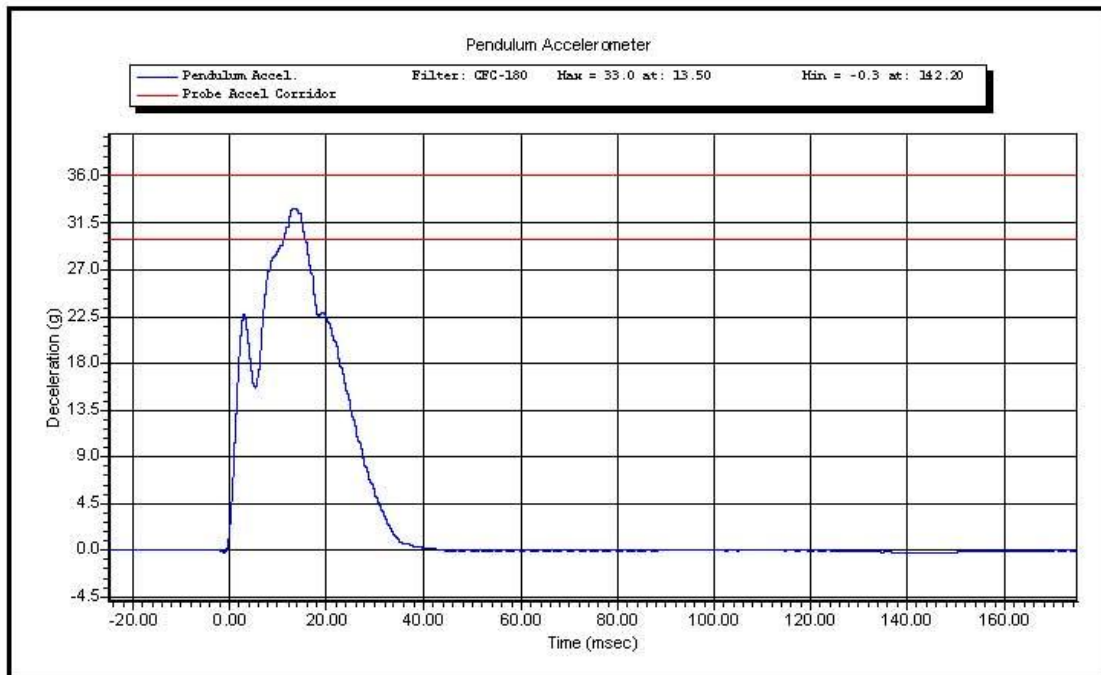


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Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/18/2011
Test Number:	1	Test Time:	6:28:48 PM



Test ID:

Test Time: 6:28:48 PM

Test Date: 10/18/2011

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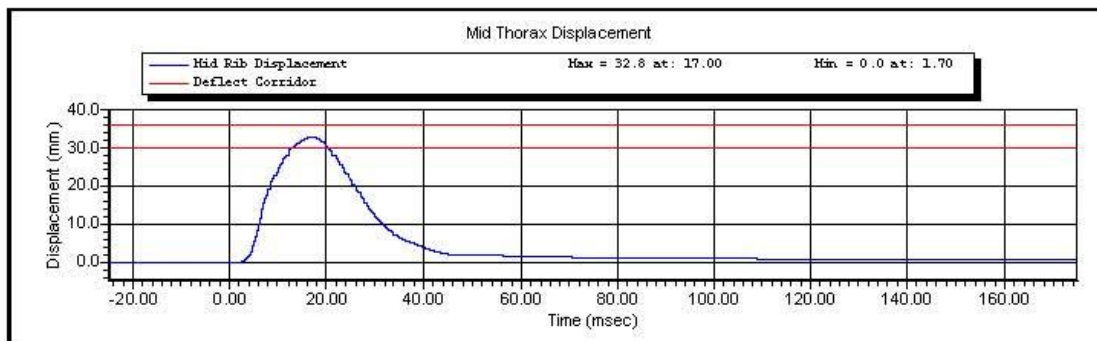
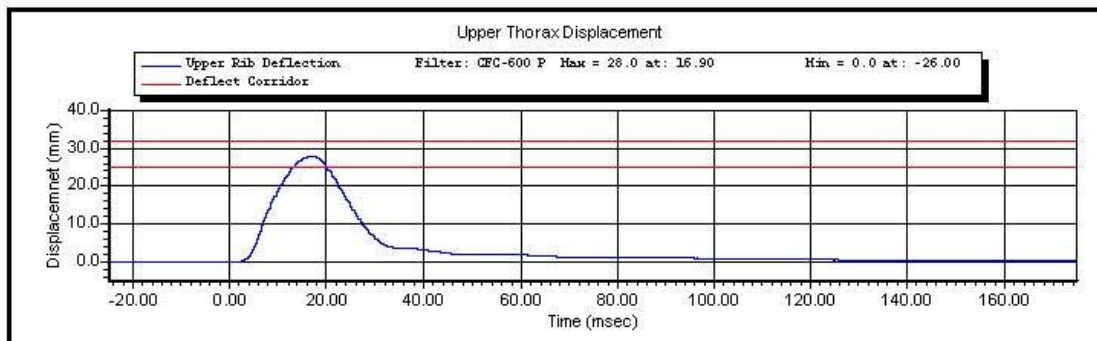
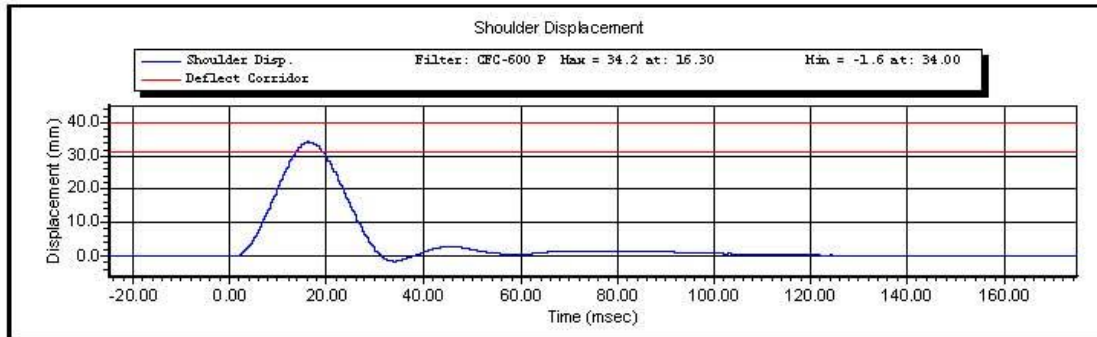
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Test Date: 10/18/2011

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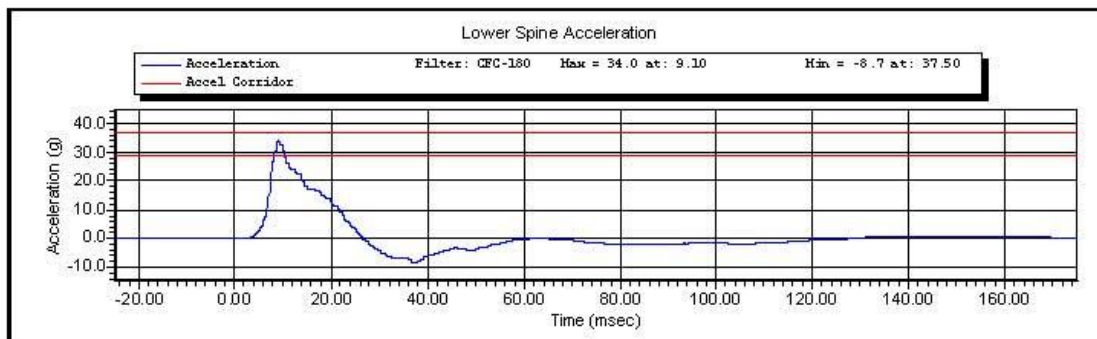
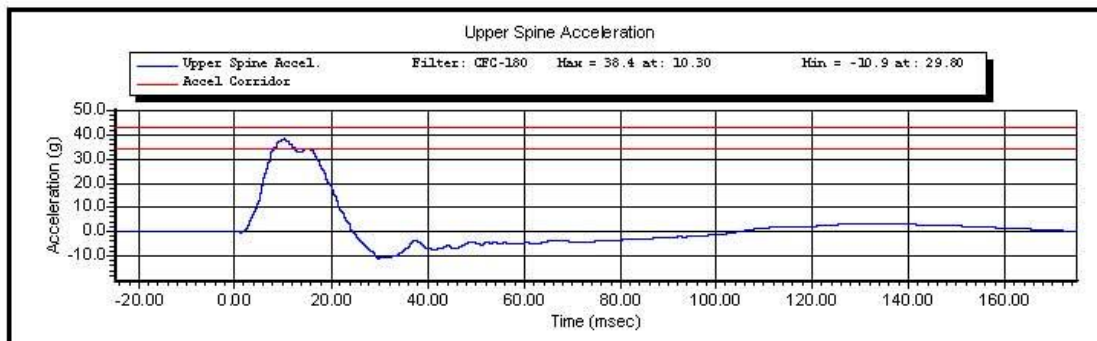
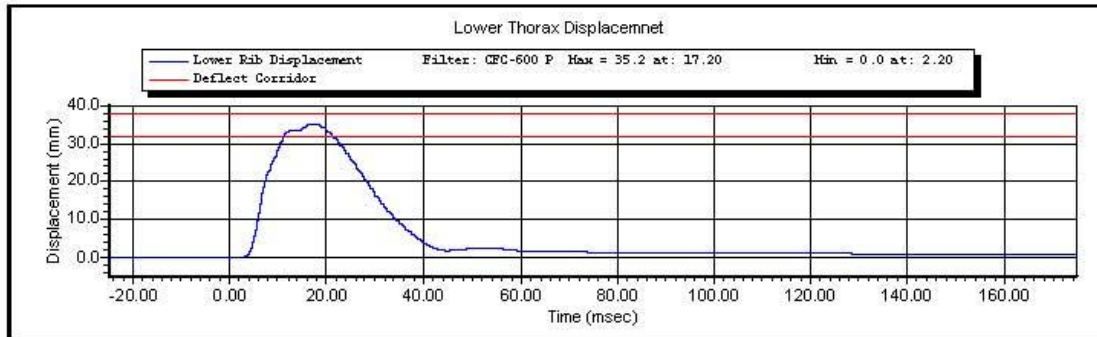
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VERIFICATION REPORT

Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test Number:	1	Test Date:	10/18/2011
		Test Time:	5:45:15 PM

Component Part Number	Component Serial Number
Thorax Ribs 1, 2, 3	DG6080, DG6081, DG7543

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.9 deg C P
Humidity	10 -- 70	39 %RH P
Velocity	4.20 -- 4.40	4.33 m/s P
Probe Acceleration	14.0 -- 18.0	16.5 g P
Upper Thorax Rib Deflection	32.0 -- 40.0	37.4 mm P
Mid Thorax Rib Deflection	39.0 -- 45.0	42.8 mm P
Lower Thorax Rib Deflection	35.0 -- 43.0	40.3 mm P
Upper Spine Acceleration T1	13.0 -- 17.0	15.7 g P
Lower Spine Acceleration T12	7.0 -- 11.0	10.0 g P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. travale**

Test ID:

Test Time: **5:45:15 PM**

Test Date: **10/18/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
FTSS	180-3881-1	DS-1849	9/1/2011
FTSS	180-3881-1	DS-1857	9/1/2011
FTSS	180-3881-1	DS-1859	9/1/2011
Endevco	7264-2000	P63561	10/3/2011
Endevco	7264-2000	P58796	10/5/2011

Test ID:

Test Time: 5:45:15 PM

Test Date: 10/18/2011

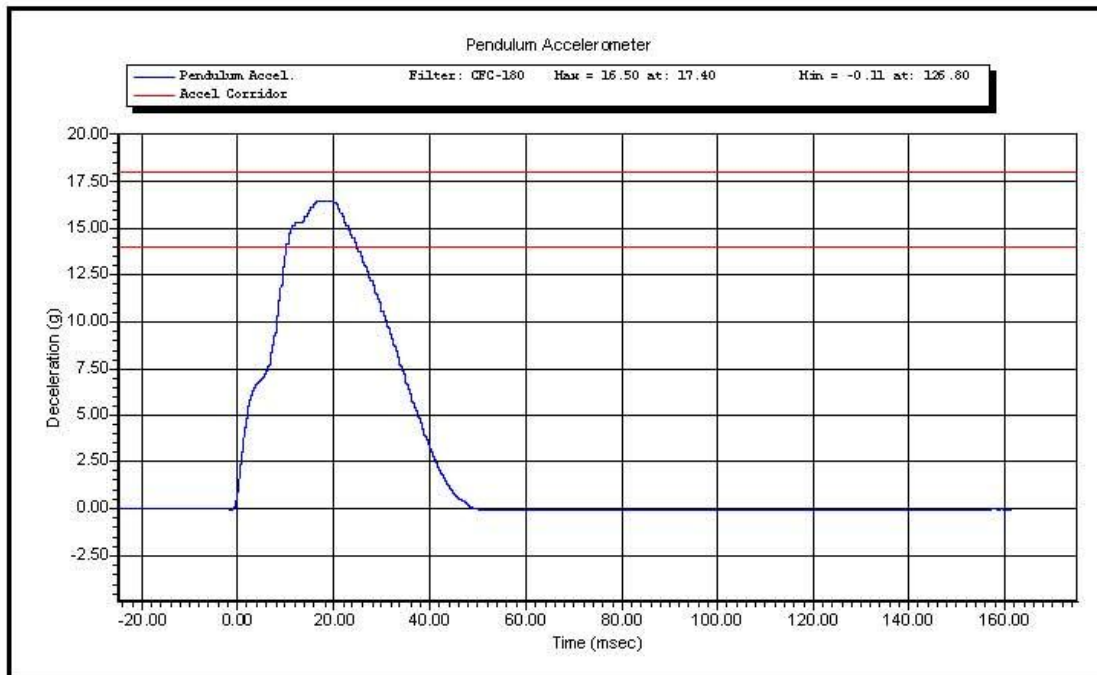


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Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/18/2011
Test Number:	1	Test Time:	5:45:15 PM



Test ID:

Test Time: 5:45:15 PM

Test Date: 10/18/2011

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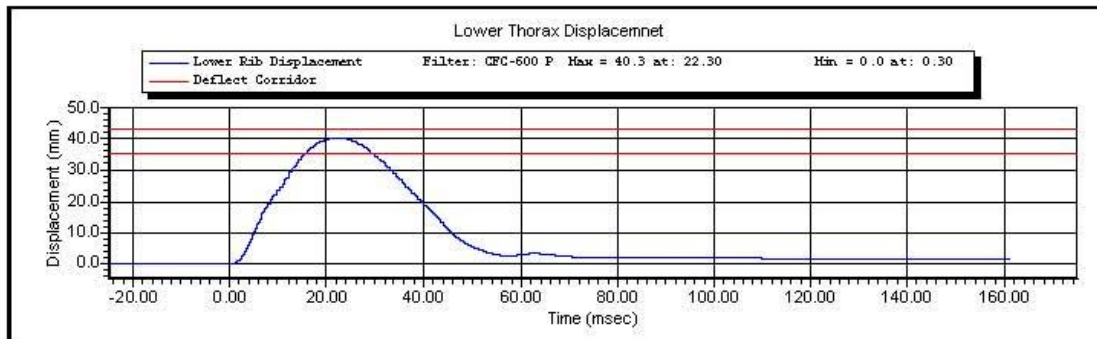
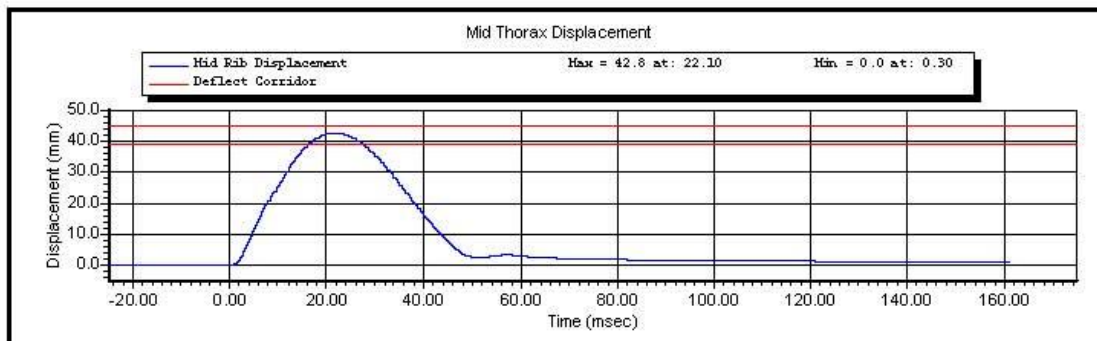
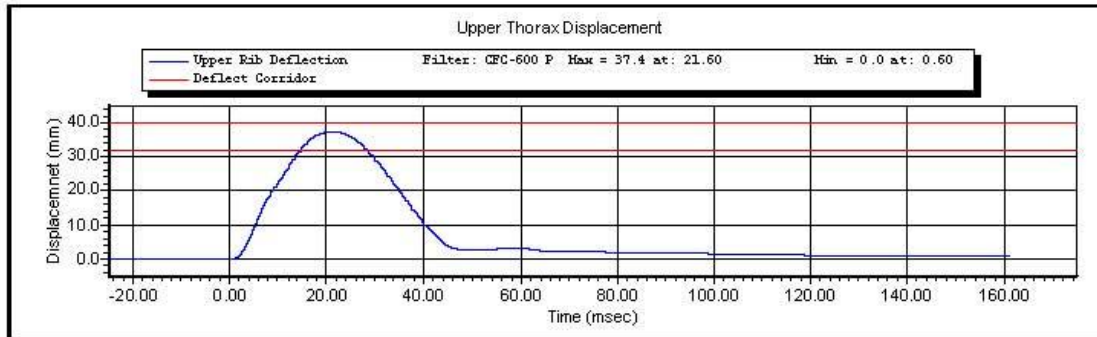
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Test ID:

Test Time: 5:45:15 PM

Test Date: 10/18/2011

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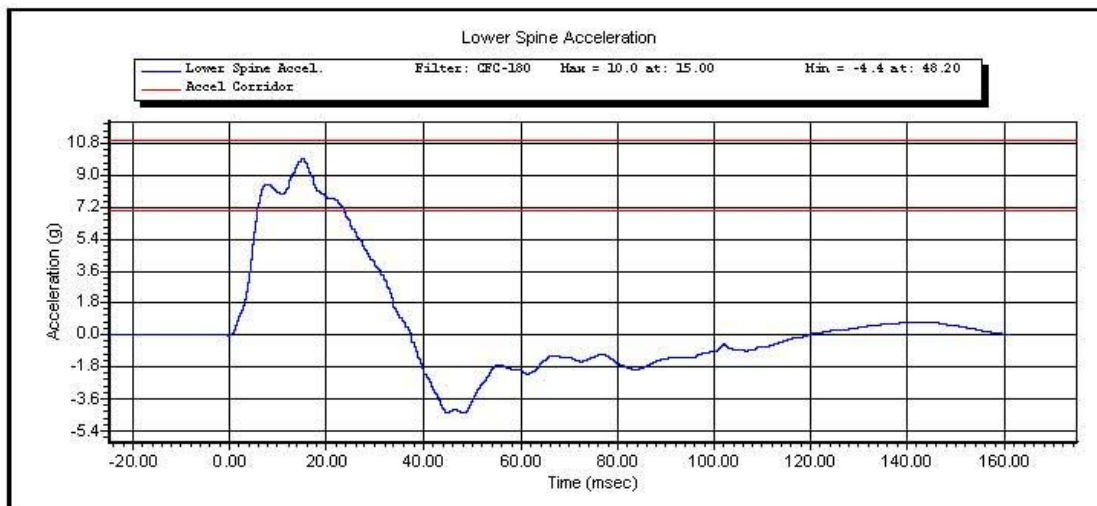
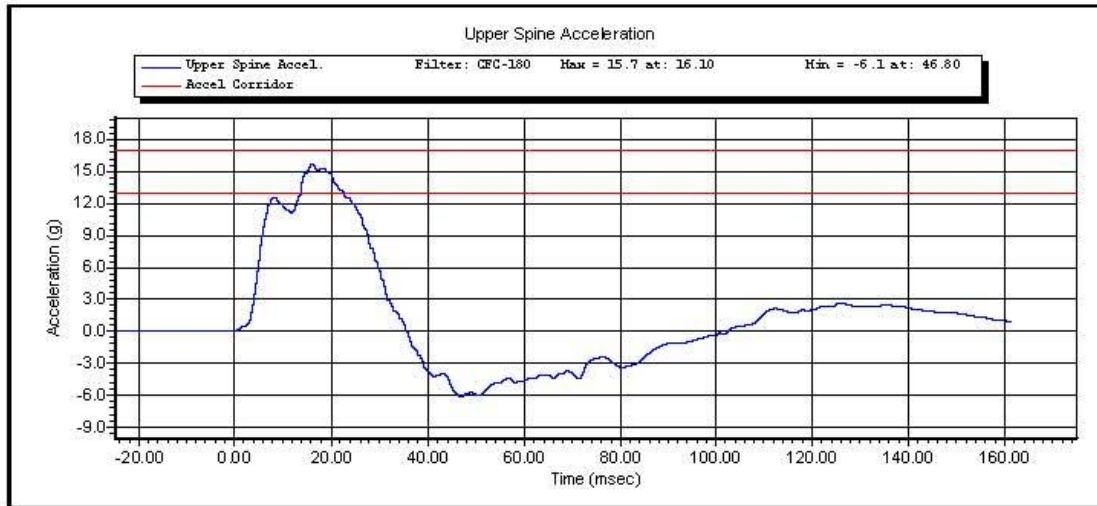
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Test ID:

Test Time: 5:45:15 PM

Test Date: 10/18/2011

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VERIFICATION REPORT

Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test Number:	1	Test Date:	10/18/2011
		Test Time:	4:16:34 PM

Component Part Number	Component Serial Number
Thorax Ribs 4, 5	DG7011, DG7012

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.9 deg C P
Humidity	10 -- 70	39 %RH P
Velocity	4.20 -- 4.40	4.32 m/s P
Probe Acceleration	12.0 -- 16.0	14.9 g P
Upper Abdominal Rib Deflection	36.0 -- 47.0	41.9 mm P
Lower Abdominal Rib Deflection	33.0 -- 44.0	39.9 mm P
Lower Spine Acceleration - T12	9.0 -- 14.0	11.1 g P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **4:16:34 PM**

Test Date: **10/18/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
FTSS	180-3881-1	DS-1860	9/1/2011
FTSS	180-3881-1	DS-1861	9/1/2011
Endevco	7264-2000	P58796	10/5/2011

Test ID:

Test Time: 4:16:34 PM

Test Date: 10/18/2011

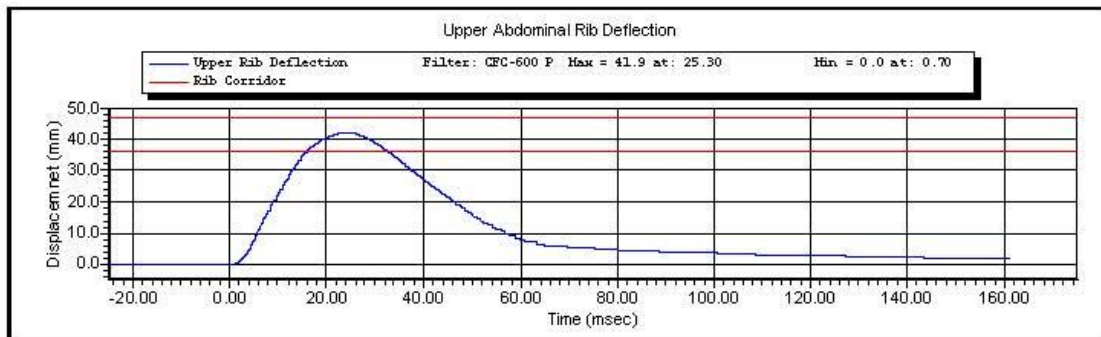
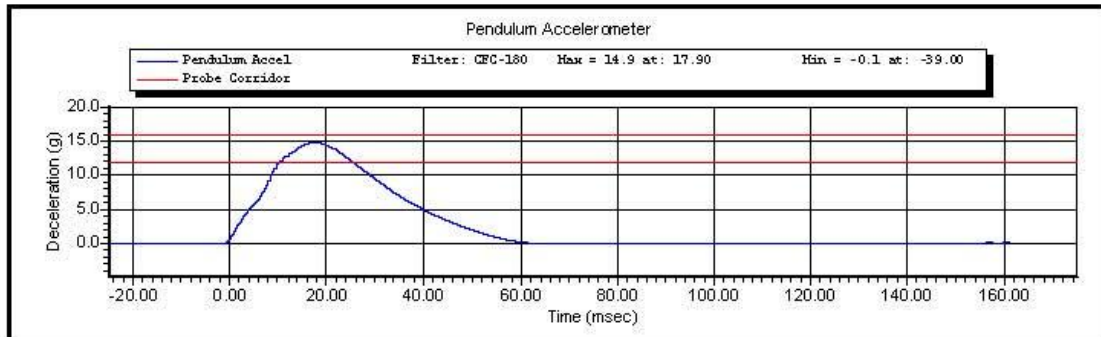


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Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/18/2011
Test Number:	1	Test Time:	4:16:34 PM



Test ID:

Test Time: **4:16:34 PM**

Test Date: **10/18/2011**

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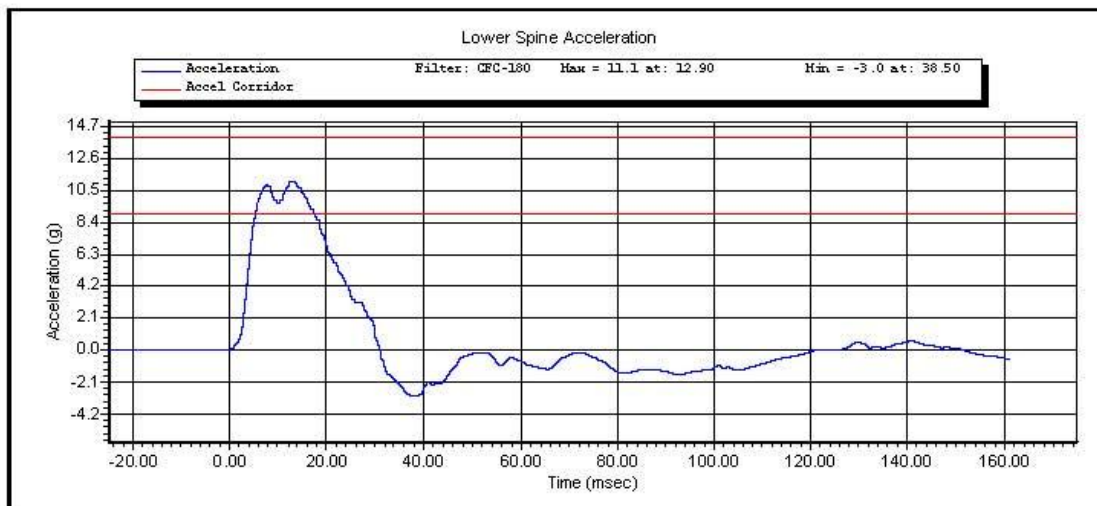
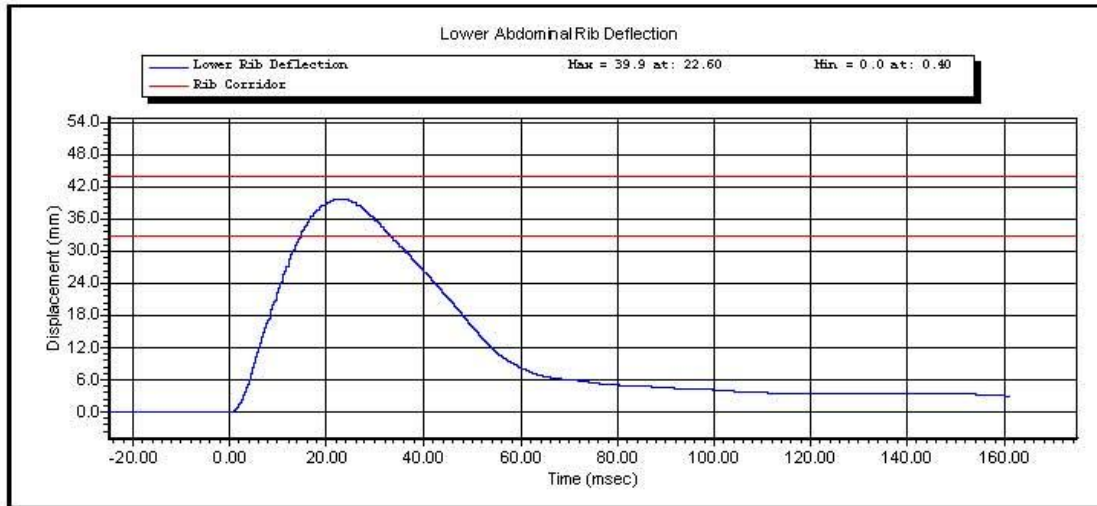
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Test ID:

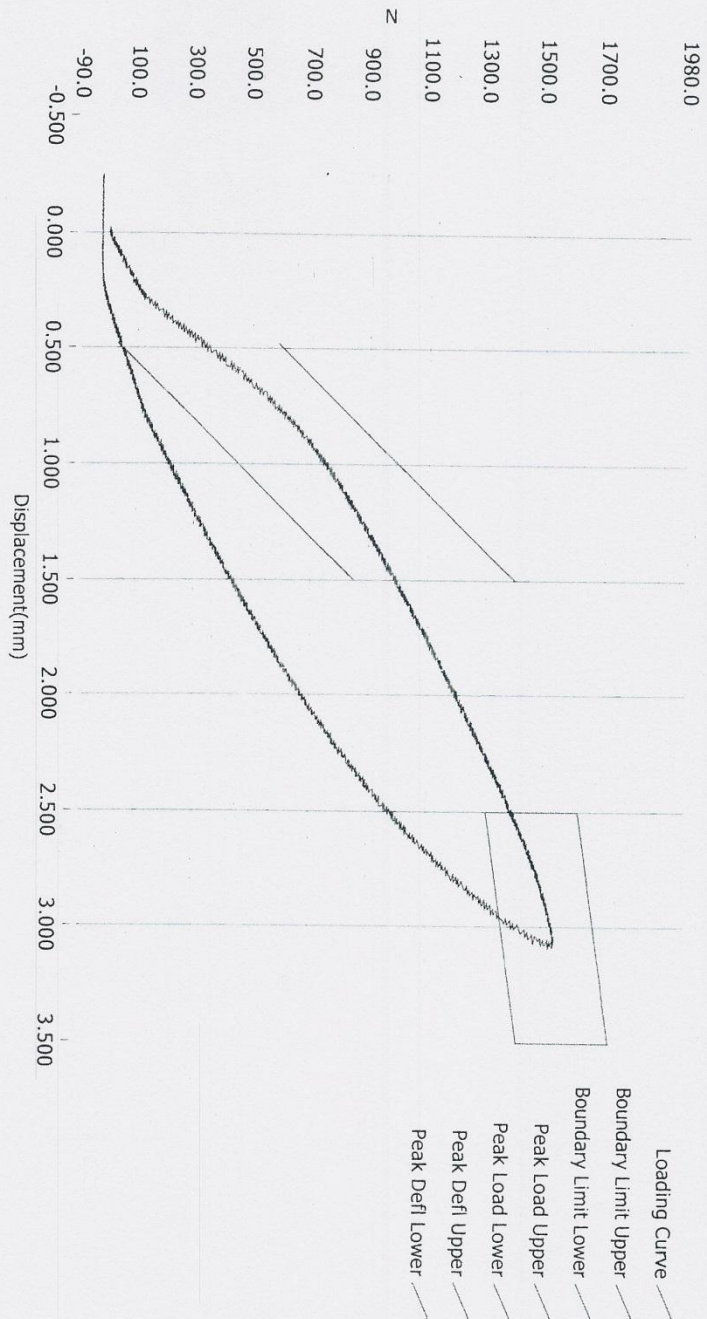
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Test Date: 10/18/2011

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2 of 2

Resultant Data - SIDIIs Plug Compression



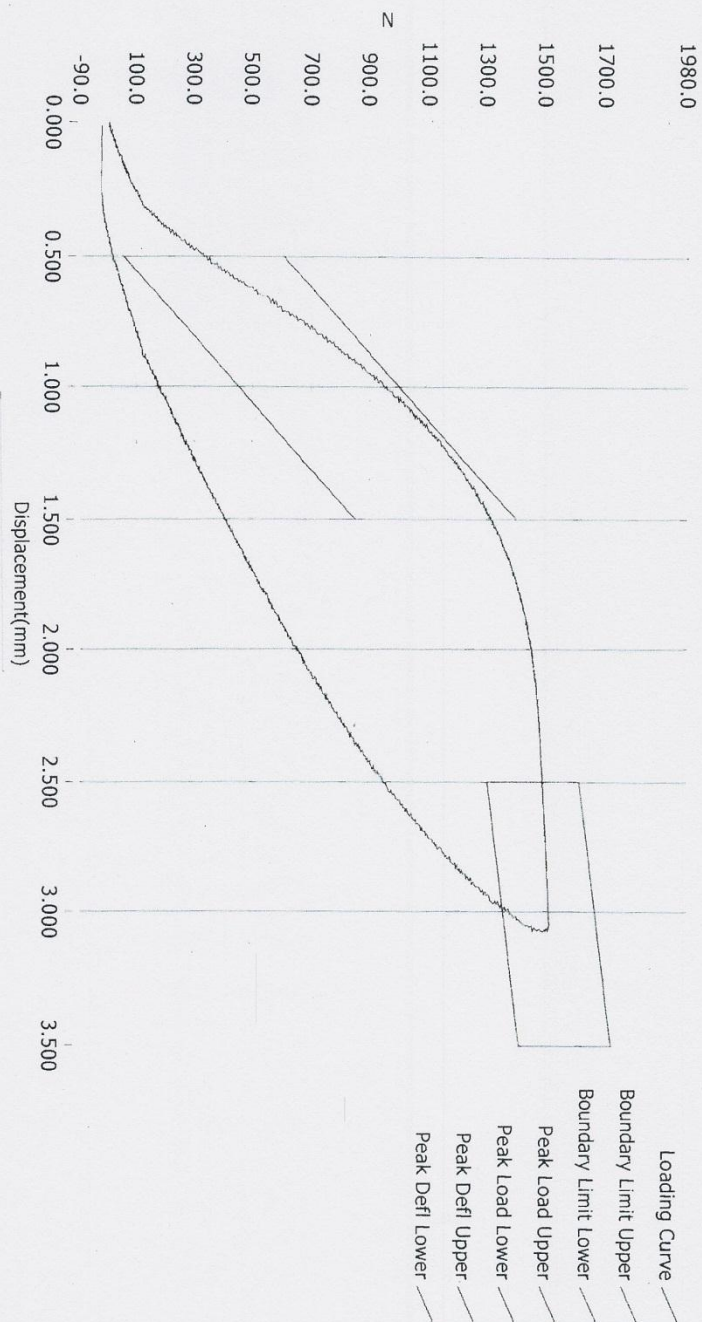
ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
Cert ID	ATD Serial Number	ATD Type	
36846	SIDIIs		

Current Date : 10/6/2010

Current Time : 16:52:04

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
Cert ID	ATD Serial Number	ATD Type	
	36268	SIDIIs	

Current Date : 9/22/2010

Current Time : 10:27:12



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VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test Number:	3	Test Date:	10/19/2011
		Test Time:	8:37:20 PM

Component Part Number	Component Serial Number
180-4343 Pelvis Flesh	DG3207
FTSS Certification Plug - 1531N	36268
FTSS Full Scale Test Plug - 1516N	36846

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.5 deg C P
Humidity	10 -- 70	49 %RH P
Velocity	6.60 -- 6.80	6.60 m/s P
Peak Probe Acceleration	38.0 -- 47.0	44.1 g P
Peak Pelvis Acceleration	34.0 -- 42.0	41.1 g P
Peak Acetabulum Force	3.60 -- 4.30	3.74 kN P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID:

Test Time: **8:37:20 PM**

Test Date: **10/19/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
Endevco	7264-2000	P51875	9/29/2011
FTSS	IF-520	LC-102Fy	3/25/2011

Test ID:

Test Time: **8:37:20 PM**

Test Date: **10/19/2011**

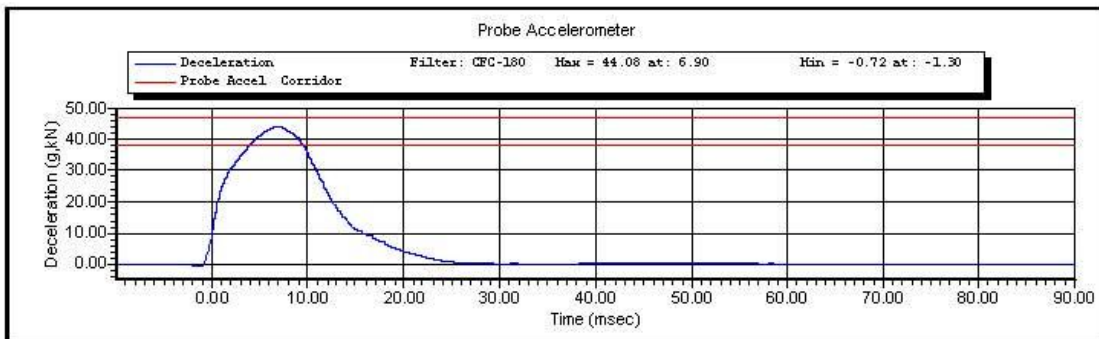
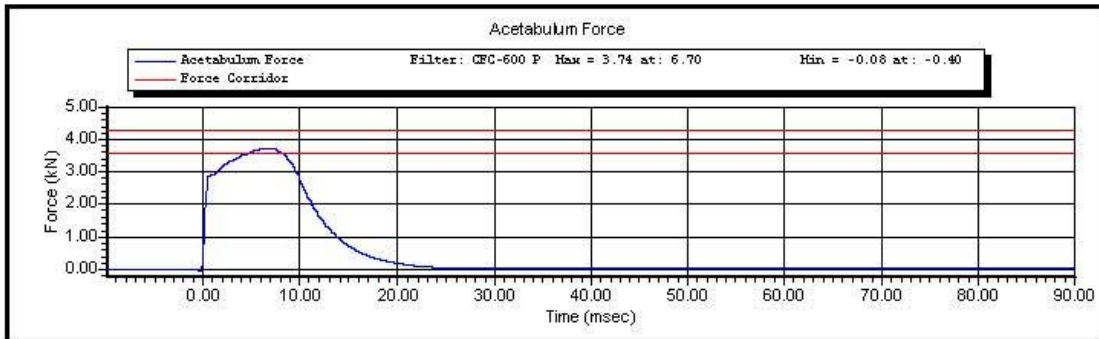


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Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/19/2011
Test Number:	3	Test Time:	8:37:20 PM



Test ID:

Test Time: **8:37:20 PM**

Test Date: **10/19/2011**

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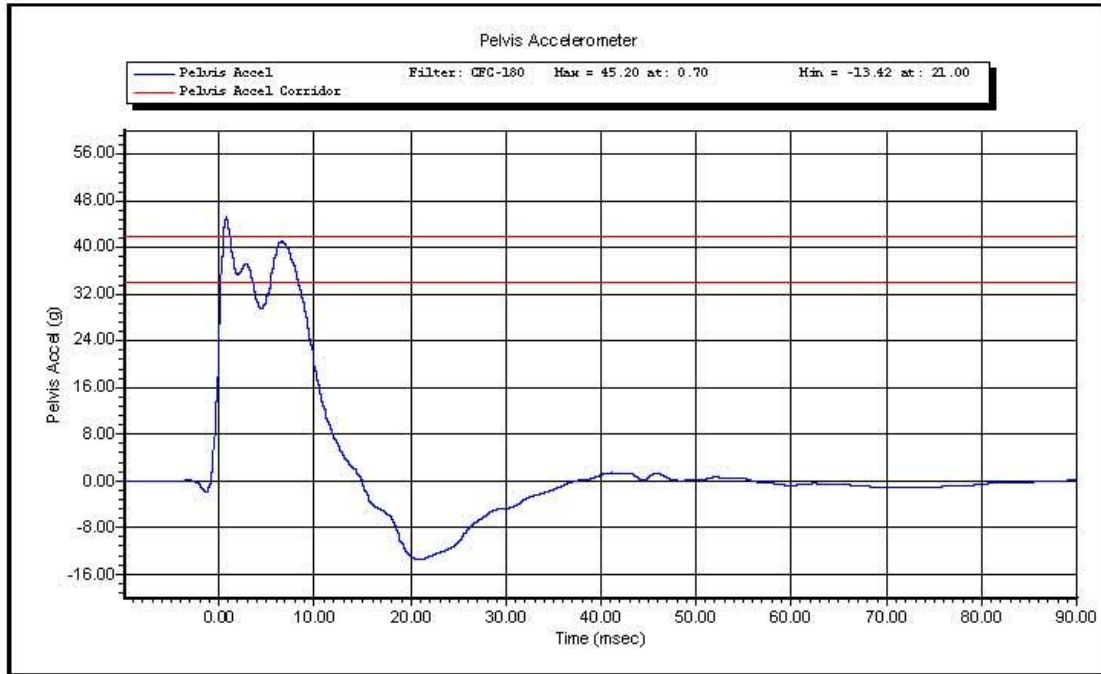
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Test ID:

Test Time: 8:37:20 PM

Test Date: 10/19/2011

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VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test Number:	1	Test Date:	10/18/2011
		Test Time:	2:50:49 PM

Component Part Number	Component Serial Number
180-4343 Pelvis Flesh	DG3207

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.0 deg C P
Humidity	10 -- 70	39 %RH P
Velocity	4.20 -- 4.40	4.32 m/s P
Peak Probe Acceleration	36.0 -- 45.0	43.8 g P
Peak Pelvis Acceleration	28.0 -- 39.0	34.1 g P
Peak Iliac Force	4.10 -- 5.10	4.97 kN P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID:

Test Time: **2:50:49 PM**

Test Date: **10/18/2011**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P18524	7/28/2011
Endevco	7264-2000	P51875	9/29/2011
DentonATD	3228J	LC-281Fy	8/31/2011

Test ID:

Test Time: 2:50:49 PM

Test Date: 10/18/2011

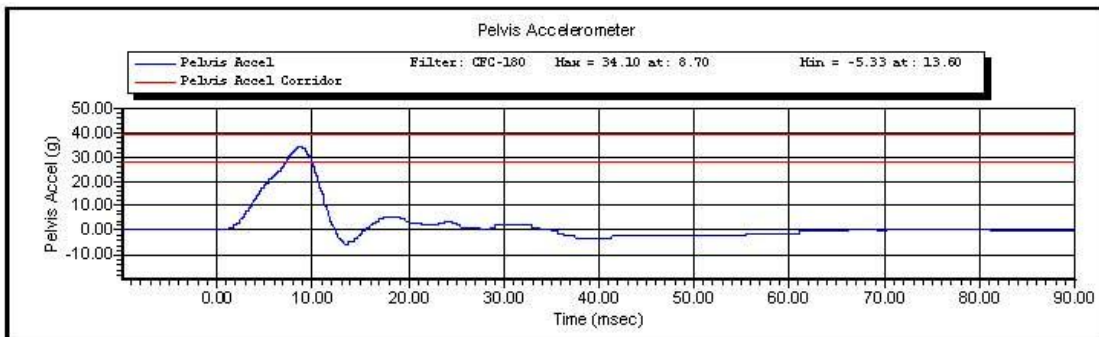
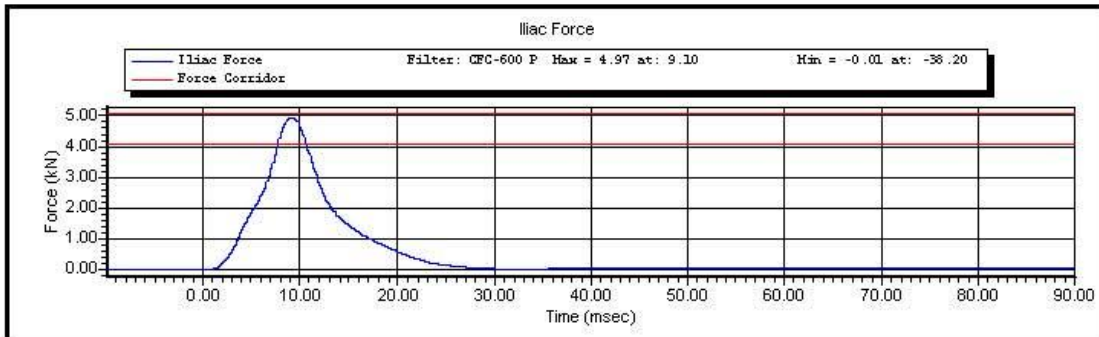


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Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	DG8012		
Test ID:		Test Date:	10/18/2011
Test Number:	1	Test Time:	2:50:49 PM



Test ID:

Test Time: **2:50:49 PM**

Test Date: **10/18/2011**

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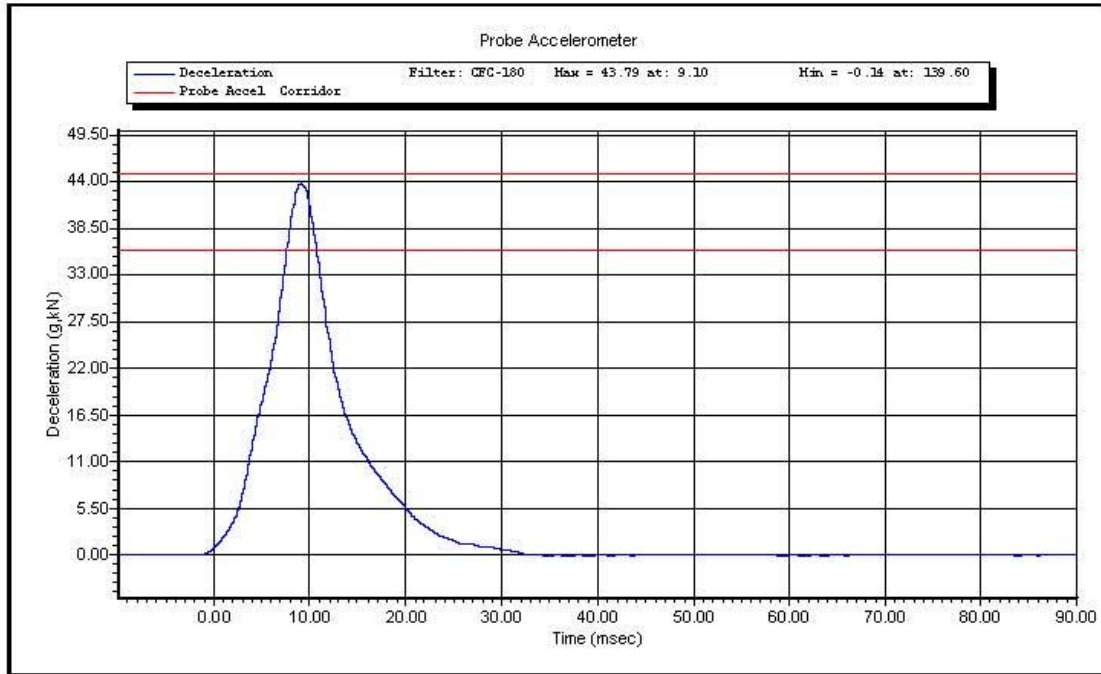
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Test ID:

Test Time: 2:50:49 PM

Test Date: 10/18/2011

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Appendix D
Test Equipment and Instrumentation Calibration Data

Table 1 – Dummy Instrumentation (ES-2re)

			ES-2re S/N		
			Serial Number	Manufacturer	Calibration Date
Head Accelerometers		X	P58737	ENDEVCO	9/29/11
		Y	P52022	ENDEVCO	9/29/11
		Z	P52040	ENDEVCO	9/29/11
Head Accelerometers Redundant		RX	P58843	ENDEVCO	9/29/11
		RY	P51668	ENDEVCO	9/29/11
		RZ	P51327	ENDEVCO	9/29/11
Thorax Rub Displacement Potentiometers	Upper	Y	183	HONEYWELL	8/31/11
	Middle	Y	184	HONEYWELL	8/31/11
	Lower	Y	182	HONEYWELL	8/31/11
Abdominal Load Cells	Upper	Y	1512	DENTON	6/3/11
	Middle	Y	1526	DENTON	6/3/11
	Lower	Y	1516	DENTON	6/3/11
Lower Spine Accelerometers (T12)		X	P58830	ENDEVCO	9/29/11
		Y	P52084	ENDEVCO	9/29/11
		Z	P51288	ENDEVCO	9/29/11
Public Symphysis Load Cell		Y	465	DENTON	8/31/11

Table 2 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N			
				Serial Number	Manufacturer	Calibration Date	
Heat Accelerometers				X	P51885	ENDEVCO	10/17/11
				Y	P58839	ENDEVCO	10/17/11
				Z	P51991	ENDEVCO	10/17/11
Head Accelerometers Redundant				RX	P68058	ENDEVCO	10/17/11
				RY	P51885	ENDEVCO	10/17/11
				RZ	P68059	ENDEVCO	10/17/11
Displacement Potentiometer	Shoulder			Y	CS-26	UNK	10/18/10
	Thoracic Rib	Upper	Y	1849	DENTON	9/1/11	
		Middle	Y	1857	DENTON	9/1/11	
		Lower	Y	1859	DENTON	9/1/11	
	Abdominal Rib	Upper	Y	1860	DENTON	9/1/11	
		Lower	Y	1861	DENTON	9/1/11	
Lower Spine Accelerometers (T12)				X	P52100	ENDEVCO	10/5/11
				Y	P58796	ENDEVCO	10/5/11
				Z	P50098	ENDEVCO	10/5/11
Acetabulum Load Cell				Y	102	DENTON	8/31/11
Lilac Wing Load Cell				Y	281Fy	DENTON	8/31/11

Table 3 – Vehicle Instrumentation

Vehicle Instrumentation			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	P35786	ENDEVCO	10/4/11
	Vehicle Center of Gravity	Y	P16289	ENDEVCO	9/15/11
	Vehicle Center of Gravity	Z	P32219	ENDEVCO	10/4/11
2	Right Side Sill at Front Seat	X	P59548	ENDEVCO	10/4/11
	Right Side Sill at Front Seat	Y	P69802	ENDEVCO	10/4/11
	Right Side Sill at Front Seat	Z	P71294	ENDEVCO	10/4/11
3	Right Side Sill at Rear Seat	X	A081436	MS	10/4/11
	Right Side Sill at Rear Seat	Y	A081453	MS	10/4/11
	Right Side Sill at Rear Seat	Z	A081456	MS	10/4/11
4	Left Side Sill at Front Door	Y	A081457	MS	10/4/11
5	Left Side Sill at Rear Door	Y	A081431	MS	10/4/11
6	Left A-Post Lower	Y	A081413	MS	10/4/11
7	Left A-Post Middle	Y	A081414	MS	10/4/11
8	Left B-Post Lower	Y	A081443	MS	10/4/11
9	Left B-Post Middle	X	A081447	MS	10/4/11
10	Front Seat Track	Y	A081412	MS	10/4/11
11	Rear Seat Track or Structure	Y	A081424	MS	10/4/11
12	Right Rear Occ. Compartment	Y	A081410	MS	10/4/11
13	Engine Block	X	A034971	MS	10/4/11
	Engine Block	Y	A027662	MS	10/4/11
14	Rear Floorpan Above Axle	X	P18532	ENDEVCO	10/4/11
	Rear Floorpan Above Axle	Y	P39743	ENDEVCO	10/4/11
	Rear Floorpan Above Axle	Z	P23303	ENDEVCO	10/4/11

TABLE 4 – MDB Instrumentation

MDB Instrumentation		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	C16680	ENDEVCO	10/4/11
MDB Center of Gravity	Y	C14901	ENDEVCO	10/4/11
MDB Center of Gravity	Z	CP30	ENDEVCO	10/4/11
Left Frame at Rear Axle Centerline	X	C16507	ENDEVCO	10/4/11
Left Frame at Rear Axle Centerline	Y	C16499	ENDEVCO	10/4/11